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PSYCHOLOGY
DOWN THE AGES

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DEDICATION

As on previous occasions, so now again I am deeply sensible of the general assistance received from very numerous colleagues and sometime pupils.

In particular, I have here to thank those friends who have so kindly taken the trouble to read through the present work in MS. Once more, I have incurred a debt most wide and most deep to Prof. Aveling, with whom I have discussed almost every line. Once again, too, I have enjoyed unstinting and invaluable counsel from Dr. Ballard. And again I have profited by very numerous, acute and judicious observations of Mr. Hargreaves. And to the services from my collaborators of long standing has now been added many a fresh and inspiring comment from a new helper, Mrs. Davidson.

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Finally, I come to my five dear Children, who have long given to my work even more assistance than they know, for all of which I tender to them my grateful acknowledgments and take leave to dedicate these volumes.

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PROLOGUE

PROLOGUE

NEVER before, it would seem, have all sorts and conditions of men betaken themselves with such ardour to "psychology".

And great as is the demand thus made upon the service of the psychologists, it is yet overtopped by what these themselves are claiming to be able to supply. At the beginning of history things were otherwise. For a very long period, psychology attempted few helpful offices save those which fell to its lot through being—as then it was—the mere bond-maid of philosophy. At length it did commence to put forward some more or less timid pretensions to being useful. It proposed to aid here and there the science of education; to serve sometimes that of medicine; and even to take a modest hand in building up economics. Very different is its comportment nowadays, when we find it extending its claim to sovereignty over almost every matter of vital human concern. The very morning that these lines are penned, for instance, one of the leading newspapers explains the recent brilliant successes of airmen by the fact that "in the last twenty years enormous progress has been made not only in the technology but in the psychology of flying". Again, the most acclaimed perhaps of all literary contributions to the cult of bridge is solicitous to warn us that "a player may know everything about Bridge technique but if lacking in Bridge psychology he cannot succeed". A few days ago, the rating of psycho-

told to an overflowing audience in New York that his procedure could cure all imperfections and eliminate all perversities of human nature; this cure-all consisted in submitting young enough infants to what has been entitled psychological "conditioning".

Nor are the more conservative psychologists a whit behind in this respect. They talk to us as follows:

> "It is not the natural philosopher; it is not the Newtons, the Laplaces, the Davys, however venerable their names may in the abstract be, who most excite the sympathies of mankind, and engross their undivided attention. These are not the household gods which universal humanity sympathetically worships. It is men who develop the principles of mind; who make human nature their study; who unfold the latent thoughts, purposes, and principles of human feeling and action."

With all these claims and promises, we can scarcely be surprised that there has come upon us a corresponding deluge of psychological books, journals, newspapers, pamphlets, and what not; or that university students—at least in some countries—flock to this branch of study in literally their thousands; or that novelists set out to solve the thorniest psychological problems; or that the general public rushes to equip itself with at any rate the latest psychological words and phrases. Nor even can we wonder much if this immense army of honoured psychologists and psychologizers does gather in its train a host of less reputable camp-followers. Here is an example of their hawking cries:

> "A twelve-volume reading course which presents all the priceless secrets of psychology in a fascinating, practical, and supremely usable form. The curtain is drawn aside and you see your mind in operation. Fascinating pictures are drawn of the things that make you think and act, and the wonderful processes of thought and action. You are shown powers capable of unlimited achievement, lying

> unused in your brain, and you are given scientific proof that these powers are at your command whenever you learn how to call upon them. You are offered specific directions for finding, controlling, using your *enormous* mental power. You are shown how to achieve wealth to the highest degree."

But what really may startle and even disturb us is that these very psychologists who profess—and are everywhere admitted—to bring such a vast accession of knowledge and power, stand nevertheless in extreme discord and conflict with one another!

No more cogent testimony to this fact can well be imagined than the recent enterprise of Clark University in gathering together authorities from far and near, each of whom—at least ten in number—claims to preach the sole great truth. In a collective volume, *The Psychologies of 1930*, they proffer to us the respective doctrines of the warring schools entitled respectively "hormic", "intentional", "functional", "structural", "configurational", "Russian", "behaviourist", "reactional", "dynamic", "factor", and "analytic". A sinister plurality! What would the world say if presented with ten rival physics, or botanies, or chemistries?

Curiously, too, this clash of schools is no special characteristic of modern times. So far back as history goes, there seem to have been conflicts of similar kind, if on a smaller scale. Time after time, we find some "new psychology" arising to overtopple the old ones, which nevertheless seem to live on somehow, little the worse.

The chroniclers of such a battle of wits have been wont to exult in the mighty blows given and taken; like old Kaspar, they have said, "'Twas a famous victory". But less complaisant sceptics might, instead, follow little Peterkin and inquire, "What good came of it at last?"

And in truth such sceptics, if few, do yet exist. For

instance, one shrewd thrust has been that, all said and done, most psychology consists in " putting what everybody knows into language that nobody understands ". More definitely, the charge has been made that :

> " There is not, in fact, a principle of the human mind in our most approved modern treatises on its nature and faculties, which may not be found among the speculations of the Grecian philosophers."

Indeed, there are even those who would not shrink from re-echoing the words of Alfred the Great :

> " I wonder why so many wise men should have laboured so much on the subject, and should have found out so little that was wise."

Herewith we come to the mission of the present book, which is to discount exaggeration either way. We will try to outline how far scientific psychology has really made progress. We will consider what wisdom it has through all the ages attained, accumulated, and preserved. In particular, we will see how far and in what direction it has gone beyond the confines of common sense—thereby meaning the knowledge shared by the generality of mankind and not confined to mental specialists.

In our handling, this mission will take the form of a history of psychology, but of a peculiar kind. It will in no way compete with such admirable works as those of Klemm, Brett, Murphy, Boring, and Flugel. It will make no attempt to follow up the meanderings of doctrine as governed by historical and extrinsic influences, cultural, political, theological, personal, and otherwise. Instead, it will everywhere deal mainly with the breaking of new ground, be this for better or for worse. Mere relapses and restorations—even under new names—will but little concern us. We aim at depicting not the waves, but the whole tide ; not the course of psychology, but

its development. To change the metaphor, we hope to indicate the chief assets, as also liabilities which have been accumulated, and so to draw up a fair and square balance-sheet.

In this we will try to find a place for each of the great movements that have aided, or perhaps thwarted, the development of psychological science. The discovery of the topic itself; its delimitation from neighbouring ones, as physiology and philosophy; the evolution of its own methods of research; the enunciation of its great rival doctrines which have throughout history waged, and still wage, ineffective war upon one another; its more progressive endeavours to depict the constitution of Mental Experiences and of the Self who undergoes them; above all, the bold attempts to bring the constituents of experience under the rule of Laws, which shall serve the essential scientific mission of explanation, prediction, and control.

Not seldom—the reader must be warned—we shall have to consider carefully the meaning of certain key words. Over and over again, fog and conflict that have overcast many centuries can be shown to emanate really from nothing more solid than the use of the same word in different senses.

The very title of "psychology" is not free from taint. By structure and by history, it ought to be definable as the science of the "psyche". But somehow or other it has slipped into other and less suitable renderings, such as the science of the "mind". We cannot here hope to stem this current of linguistic usage. At most we can timidly and diffidently introduce the term "psyche" in a few cases where it seems to be particularly demanded.

PART A

WHAT PSYCHOLOGY IS ABOUT

CHAPTER I

SCIENCE OF THE PSYCHE

§ 1. Doctrine of Wandering Doubles. § 2. Search for Principle of Life. § 3. Psychology with a "Soul". § 4. Psychology without a "Soul". § 5. Dispensation from Definitions. § 6. Enrichment and Impoverishment. § 7. Upshot.

§ 1. *Doctrine of Wandering Doubles*

This question of a title reminds us that the said warfare of schools has extended its ravages so far as to dispute what psychology ought to take for its subject-matter. Indeed, strangely enough, the encounter seems to have been more violent on this issue than on almost any other. Is it the fate of psychology to be a pure science of consciousness? Or should it only form part of the study of the integrative action of the nervous system? Is it obliged to be essentially biological and to deal only with the responses of the organism to the stimuli from its environment? Or may its scope embrace inquiry into the nature of the Self? Or of the Soul? Should it attempt to deal with values, such as the Good, the True, and the Beautiful? Are its proper problems those of "faculties"; or of "acts"; or of "objects"? Of "structure"; or of "function"? Does its range extend to any "*subconsciousness*"? Do the data at its disposal include what can properly be called "measurements"? Is it, or can it ever hope to be, or should it so much as try to be, a systematic science at all?

Such momentous questions will have to be faced by us. And in order to do so with the best prospect of

success, we shall have to begin by going a long way back; by returning to the extremely primitive stage of culture when the appetite for science, whether physical or mental, was still unborn. Not yet had begun the great quest after recondite wisdom. Men were well enough satisfied with what was presented to them by their natural sense, or—as it has been more bluntly expressed—their "horse-sense". For them it was sufficient—as it is for animals on the equine level—to eat when they were hungry, to drink when they were thirsty, to fight when they were angry, to run away when they were frightened, and to mate when circumstances were propitious. Happy with doing all this that the good biologist bids us do, they did not plague themselves and others with endless Whats and Hows and Wherefores. Not yet had been uttered Heine's prayer:

> "O solve me the riddle of Life,
> The hoar-ancient torturing riddle,
> Over which so many heads have mused,
> Heads in hieroglyphic caps,
> Heads in turban, and in black biretta,
> Bewigged heads and a thousand other
> Poor sweating heads of mortal beings,
> O tell me, What does Man mean?"

In particular, far from first trying to explain his own mental nature in any manner at all, a man in those early days confidently used this nature as the master-key to explain everything else. He looked on the world around him as an assemblage of living beings analogous to himself.

> "Sun and stars, trees and rivers, winds and clouds become personal animate creatures, leading lives conformed to human or animal analogies."

But there was an exceptional point where this incuriosity of man towards his own nature seems to have eventually broken down; it was the amazing phenomenon

of dreams. The primitive man found that he himself was sometimes behaving in an extraordinary manner. He had the experience, as it seemed, of being transported great distances in moments of time and regardless of intervening barriers; he ran down the fleetest deer, struck to earth the fiercest enemy, or ravished the most resistant female; whilst all the time his ordinary solid self—as unimpeachable witnesses could subsequently testify—had lain prostrate, motionless, and apparently even insensible.

Akin and, though rarer, still more astounding, was the experience of hallucinatory apparitions. Such a ghostly visitor at the same time both is and is not some ordinary person. His face, form, dress, and especially what he says or indicates, would seem to prove that he is only a man as other men. Nevertheless his nebulous aspect, his mysterious coming and going regardless of all material obstacles, such as walls, doors, or locks, above all, his incompatibility with the positive knowledge that the person he seems to be is really far away—all these facts set up a problem that both compelled attention and at the same time suggested a solution; namely, that a person is really *double*.

The same belief in a double personality explained also readily enough that greatest of all happenings to a living man, his death. For this was taken to be merely an occasion when the vaporous double, having quitted the solid body, failed to come back to it. On the whole, then, the theory and the observations of the primitive inquirers were admirably concordant. Many a modern investigator, struggling to turn what he sees or hears into passable good sense, might well envy their goodness of fit.

Nor did this imposing theory of the ancient thinkers fail them in respect of the further great scientific requirement, which is that, besides being consistent with previous

observations, it should also be elastic enough to meet new ones. The belief in tenuous but visible duplicates, although originally attributed to the human race, could easily enough be extended to the lower animals also; indeed, to plants, trees, or even inorganic things. For example, when a Fijian chief was buried, a heavy club was customarily placed by his side, the intention being that the double of the departed chief should be followed and rejoined by the double of his club. There was nothing to prevent still further multiplication. Thus, travellers in North America have reported the Algonquin belief that, besides the ordinary body, there are *two* extraordinary copies. One of these abides within the body even after death. To sustain it, bread and other victuals are laid beside the corpse; the ghost of the man feeds on the ghost of the bread. The second of the extraordinary beings has a more roving disposition. Even in life, it upon occasion flits away from the body and back again. In death it goes off permanently to live in the land of its fellows.

For the purpose of explaining the dreams, apparitions, death, and so forth, nothing more than such visible copies of the body would seem to have been needed. But the primitive sages did not stop at this. In the copies they all too easily found scapegoats on to which they could shift blame that might otherwise have fallen upon themselves. The copies were depicted as possessing and exerting magical powers. And they craved, it was said, to be courted, flattered, and when angry appeased. Out of this teaching there developed among the primitive races a plague of spells, enchantments, sorceries, theurgy, thaumaturgy, abracadabras, and other kinds of mumbo jumbo; worse, the most revolting of rites and abominable of sacrifices.

But in the course of time, all this ferocity has abated. The ancient demons who rejoiced in baths of human

blood have been tamed down into the modern ghosts and wraiths who are mildly addicted to table-rapping.

§ 2. *Search for Principle of Life*

But another doctrine sprang from the same experiences differently interpreted. This time, when anybody died, the primitive bystanders still thought that something had quitted his body. But now the thing which departed was no longer supposed to consist in any sort of visible copy or ghost. At the price of less aptly explaining dreams and apparitions, it was merely conceived as something supremely evanescent or fugitive. It was taken to be a "flame", or a "shadow", or a "winged bird", or an "excited sea". More important, however, than any of these poetic fancies, was the fundamental observation that the surest criterion as to whether a person lives or not is supplied by his breathing; he is dead when he gives out no more *air*. And just this element appeared to the ancient philosophers most wonder-working. According to Anaximenes, it pervaded every part of the universe, inserting itself between the grosser parts and holding them together.

Accordingly we find in almost every language that the entity, which by dwelling in the body imparts life to it, and by roving produces apparitions, is called by some word indicating air, breath, or wind. Thus, in the poems of Homer, that which survives the dissolution of a person's body was denoted by the term *psyche*, which is the Greek for breath. Even the more exalted being, which was much later conceived by the Stoics and contrasted by them with the carnal body, received from them the name of πνεῦμα, a word meaning nearly the same thing (πνέω, I blow a breath). This word was, too, adopted into medicine by Galen. Similarly, in Latin, *anima* and *animus* come from ἄνεμος, the Greek

for wind; whilst *spiritus* is from *spirare* to breathe. So, too, the Sanskrit, *atman* and *prana*, the Hebrew *nephesh*, the Slavonic *duch*, the Javanese *uawa*, the Nitalese *piuts*, the West Australian *wang*, and the Aztec *julio*. The French *âme* is, of course, only the *animus* or *anima* again. There are some rather dubious indications that the Anglo-Saxon "ghost" and *Geist* have a similar derivation.

Up to this point in our story, then, the early thinkers formed two different ideas of what is needed to explain dreams, apparitions, and life; the one idea was that of a visible ghost, the other was that of an invisible wind. But there was a further and vastly more important divergence of belief about the explanatory principle. Be this principle ghost or wind, does it or does it not consist of ordinary matter like that of which the body itself is composed? The affirmative view has become known as "materialism"; the negative is now called "spiritualism" (although originally even the "spirits" were commonly taken to be of material nature).

Often the two principles were accepted together; the material one was believed to abide in the body and keep it alive; whereas the immaterial one wandered or survived on its own account. Writings as early as those of the Old Testament seem to represent the principle of life in the material blood (*nephesh*) as something essentially distinct from the immaterial spirit (*ruach* or *neschama*). So, too, Buddhism contrasted the material principle of life (*akegerun*) with the immaterial soul (*erkin sunesun*). These two were often for some obscure reason brought into at any rate verbal connection with sex. With St. Paul there was the feminine *anima* which conferred life on the body and the masculine *animus* (also named *pneuma* or soul) which after death survived outside the body; altogether a belief curiously like that of the primitive Algonquins.

The material function which the breath performed in keeping the body alive was frequently taken to consist in imparting to the body the power of movement. Sometimes the spirit was even defined accordingly; it was said to be that which moves other things without itself being moved. Such a virtue was attributed by several leading Pythagoreans to the motes in the air; this was done on the ground that the motes remain in continual motion even when there reigns about them a perfect calm.

Far more elaborate was the general doctrine of Aristotle. He declared that there are five different ways in which things are said to live. First and most general comes the faculty of absorbing food (and producing offspring). So much, he said, is possessed by all living beings whether animals or even plants. The second manifestation of life he took to consist in locomotion and to be restricted (usually) to animals. Very different were his third, fourth, and fifth ways of living. What precisely these signified is debatable enough; but at least they included respectively such things as sensory perception, desire, and intellect. Although, however, this complete view of "life" persisted for several centuries, it never appears to have achieved any overwhelming success. Even its avowed followers failed to make it a basis for further scientific development; instead, their treatment of the topic became increasingly vague.

The great departure from the Aristotelian doctrine was to divorce the first two faculties from the last three. Aristotle himself began the separation, in that he treated the three latter without much reference to the two former. But subsequent writers, on the contrary, cultivated the two bodily faculties with almost no regard to the three mental ones. In the development of this physiological and materialistic doctrine, bodily movement was taken

to be caused by " spirits ". And these, by the time of Galen, were built up into an elaborate theory. They were declared to be of three kinds: the " natural " spirit which was prepared in the lungs and took effect in flatulence, irritation, dizziness, and yawning; the " animal " spirit, which derived from the heart and arteries and was influential in digestion and procreation; and the much finer " psychic " spirit to be found in the ventricles of the brain.

Later on, indeed, the word " spirit " dropped out of usage in this connection. But something very similar persisted under the newer name of " nerve impulse ". And the theory of " life " became more exclusively materialistic than ever.

Thus Claude Bernard wrote as follows:

> " The mechanical forces, physical and chemical, are the sole effective agents of a living organism."

And Bayliss, quoting this passage with approval, adds:

> " The reason why we make an independent science of physiology is because the laws of physics and chemistry exert their influences in a specially complex system. At present we are unable to analyse the workings of this machine to more than a limited extent. We know, for example, that glucose applied to a living cell is burnt up and that the energy set free from it is used for particular purposes; but how this happens is as yet beyond our comprehension."

§ 3. *Psychology with a " Soul "*

In this fashion, the three higher faculties advocated by Aristotle—not without anticipation by Plato and others—were left, so to speak, out of the game. Rejected by physiological biology, perception, desire, and intellect had to fend for themselves.

Since they appeared to be of an immaterial nature,

they were naturally enough identified—or shall we say, were confused—with the aforesaid death-surviving ghosts. And to this day a great many people credited with common sense continue to anticipate confidently an eternal *post-mortem* existence in some such sensual form.

But the belief in survival after bodily death, far from being impaired, was intensified when the speculations of the plain man gave way to those of the patristic theologian. Augustine, by dint of pondering over such human achievements as the function of memory, the exercise of the will, and the conception of universal ideas, arrived at characterizing the psyche as free, immortal, and super-sensual.

In this way, we have reached that which we were seeking: the origin of the oldest and perhaps still the most widely held view as to the domain of psychology. This view we have found to have been the issue of the marriage between two great ancient doctrines. Firstly, that of an immaterial soul or spirit. And secondly, that of mental faculties such as those of perception, desire, and intellect. The topic of psychology was taken to consist of the said soul possessing and exercising the said faculties. Such a soul was fundamentally distinguished from and contrasted with the material body associated with it.

No great change came over the scene when, with the Renaissance, the leading role passed over from theological hands to those of secular philosophers, such as Descartes. For now the psyche was conceived as a simple, real, durable, but nevertheless immaterial "substance". When exercising its faculties it became "the thing that thinks" (*res cogitans*), and the subject-matter of psychology. By "thinking" (*penser*), be it observed, he—with strange license—intended to cover all the three higher faculties of Aristotle.

In essential nature, a similar viewpoint of psychology

has persisted and flourished to this day. But it has been represented in varying words. Indeed, linguistic usage has been, not only inconsistent, but positively freakish. The original term " psyche ", although universally perpetuated in the compound " psychology ", is nowadays seldom used by itself. On the other hand, the French and German adjectives from the same term (*psychique* and *psychisch*) are quite current to denote the mental faculties and processes; whereas the English corresponding word *psychic* still harks back to its original connection with spooks. No less erratic has been the fate of the word " spirit ", as we have already seen. Nowadays it shows a tendency to resume its association with ghosts. The English " soul " has also been diverted away from psychological usage. It has been almost monopolized to lay emphasis upon immortality, whereas the corresponding German word (*Seele*) and also the adjective (*seelisch*) still retain their dominance in psychology.

But although the changes just mentioned have been little more than verbal, some real difference of doctrine would appear to be introduced when psychology is said to be a science dealing with the " subject ", " ego ", or " self ". About this concept and the doctrine relating to it we shall have much to consider later on (Chapter XIV).

Again, a real change, but a different one, was introduced when, as has become very common, psychology is said to be about the " mind ". Originally, this word appears to have signified memory. And it still continues to suggest some such domain of thought. But it has furthermore acquired a meaning as broad as that of " psychic ". Moreover, it may or may not imply a soul in the sense of something substantive. One more conception of psychology may be mentioned here. Instead of thus rendering the psyche by a term which possesses

no definite meaning, recourse may be had to the bolder policy of throwing all meanings indiscriminately together. Hamilton, for example, writes that psychology is the "science conversant about the phenomena, or modifications, or states of the mind, or conscious subject, or soul, or spirit, or self, or ego".

§ 4. *Psychology without a "Soul"*

So much for the chief attempts to take psychology as the science of some psyche, soul, or otherwise named spiritual substance, which "owns", "underlies", or "carries" the mental faculties.

But about such an immaterial soul there were bound to be heard voices of criticism. What is the evidence for it? Where and when has it ever been seen, heard, or felt? Is it not a relic of primitive superstition? Or at best, an idle dream of too-much-leisured philosophers?

Indeed, even if we concede its existence, how—ask these critics—is it ever going to be of scientific utility? No one can describe it, let alone derive from its nature any laws concerning its properties, so as to predict and control the future.

If any further inducement were needed to make us discard any such spiritual being, we may be referred to the example of physical science. For many ages this too worried itself about assumed entities, such as "matter" and "ether"; but now at last—to its great relief—it has (or believes itself to have) relegated such illusive things to the limbo of superstition.

Nor is this robust scepticism anything new. It appears to have been already attempted with exemplary vigour some 3000 years ago, when Protagoras said: "Man is but a bundle of sensations". Great words! Whenever they were subsequently forgotten, new fame was to be gained by those who, like David Hume, said

them over again. By this and other lines of argument there has been evolved what F. A. Lange stigmatized as a " Psychology without a ' Soul ' ".

But how in such a case, it may be asked, are all the appropriate faculties—those of Aristotle or any other author—going to be unified into a single sphere of knowledge? Where, if at all, shall we find any fundamental characteristic that includes the required facts but excludes those not required?

A simple proposal would be to use the adjectives of any of the terms which we have just been employing. But they do not seem to fit very well. To talk of the science of the " psychic " suggests spiritualism. Even " psychical " is, to say the least of it, ambiguous. But still more so is it to speak of the " spiritual ", or of the " soulful ", or of the " ghostly ", or of the " animated ", not to say, of the " pneumatic ".

The most obvious solution might seem to lie in calling psychology the science of the " *conscious* ". But even here we encounter a grave difficulty. It is that the word equivocates. Originally, it was defined with all desirable precision. For Plotinus and his successors, the Greek equivalent meant simply the knowledge of what passes in one's own mind (see Chapter XXI). So, too, subsequently Cousin wrote plainly enough :

> " We not only feel, but we know that we feel ; we not only act, but we know that we act ; we not only think, but we know that we think. . . . The peculiar quality, the fundamental attribute of thought is to have a consciousness of itself. Consciousness is the accompaniment of all our faculties ; and is, so to speak, their echo."

Further, this definition of consciousness as an accompanying knowledge is expressed in the very structure of the word (*con* for the idea of accompanying and *scire* for that of knowing).

But with the subsequently dominating associationists

—whose handling of delicate matters is not seldom suggestive of bovine activity in a china shop—the original idea of consciousness was lost. It was allowed to drift away from the *knowing* that we feel, act, or think, and to mean instead the feeling, acting, or thinking *itself*. At the present moment, it has degenerated into one of the worst sources of misunderstanding between different psychological schools.

There is another important way in which the attempt has been made to indicate the domain of psychology without introducing any substantive soul. A large portion—perhaps the majority—of modern psychologists have had recourse to calling their science that of "experience"; often this word is qualified by some such adjective as "immediate", "lived", or "subjective". But how shall these terms themselves be defined? Little light is afforded by consulting the diversified and conflicting usages made of them in psychological literature. Or, if we would fall back on the fundamental support of etymology, we only discover that originally in Latin the word experience meant "a going through thoroughly". To make this serve towards delimiting psychology will demand, to say the least of it, some ingenuity.

Altogether this "psychology without a Soul" has not had unqualified success so far as concerns marking out its domain with tolerable definiteness. But on the other hand, it does appear to have achieved a notable excursion beyond the limits of common sense. Faculties that are those of nobody! Processes, with nothing that proceeds! A going-through, with nothing that goes through! A science of a person's perceptions, feelings, and thoughts, that contains no mention of the person himself! These certainly seem to lie beyond the compass of the average man in the street.

There remains one more term which is frequently employed to mark out the sphere of psychology. This

is " mental ". Contrasted with the physical we hear of the mental science. The word seems, like " mind ", to have derived originally from memory, but through the Latin *mens*, instead of the Anglo-Saxon *gemynd*. Nowadays, however, the two have firmly united. " Mental " means that which pertains to the " mind " and, therefore, shares all the ambiguity attaching to the latter word.

On the whole, the present writer, if he could start from a clean sheet, would give preference to the word " psyche " and its compounds. But often historical precedents and liability to misunderstanding will constrain him to employ one or another of the more or less synonymous terms; especially " mind ", " mental ", and occasionally even " soul ".

§ 5. *Dispensation from Definitions*

The moral of the preceding considerations seems to be that there is much difficulty in fitting psychological science with any blameless formal definition.

But anxiety on that account may be lessened by hopefully recalling that general ideas may not primarily derive from formal definitions at all, but rather from general impressions; that is to say, from regarding a number of things as being in some unspecified way similar. After this fashion it is that young children pick up their ideas of a " ball ", a " dog ", " naughty ", and so forth. And the ordinary adult continues to rely on much the same procedure.

Now possibly even the psychologist is not always exempt from this manner of obtaining his general ideas. When he compares such things as perception, desire, and understanding—indeed, even when he originally brings them together for the purpose of comparison—he may perhaps confidently, however indefinitely, realize that they have some characteristic in common. To

denote this fact he may invoke whatever name seems to be most nearly connected with it, be this "psyche", "mind", "consciousness", "experience", or anything else. If so, the mere fact of different authorities choosing such terms diversely may be a mere matter of words. It need not—as certainly does the admission or rejection of the "soul"—invoke any serious conflict of doctrines.

§ 6. *Enrichment and Impoverishment*

However, there still remain other points with respect to which different views of the scope of psychology do really lie far apart.

An outstanding case is specially bound up with the term conscious. Under this name, as has already been said, the fact was expressed that a person not only feels, acts, and thinks, but also *knows* that he does these things. But then the suggestion lies close to hand, that he may sometimes do such things *without* knowing it. In addition to the sphere of consciousness, it is said, there may also exist that of psychical "unconsciousness"; besides the manifest world of sensation, desire, understanding, and so forth, there may be a nether world, perhaps even vaster still, where similar experiences proceed without being known even to the experiencer himself.

Far more numerous, however, have been the attempts not to make additions to the scope of psychology, but rather subtractions from it. Indeed in such subtractions —extraordinarily diversified and vehemently defended as they have been—would appear to lie the main source of the present fatal strife between schools. Each of these manifests its progressiveness, not so much in enriching psychological science, as rather in impoverishing it.

Instances will be encountered by us plentifully enough.

§ 7. *Upshot*

In this chapter we have seen that psychological science sprang originally from cogitation over the mystery of life. A general solution to this mystery was found in the breath; a man lives so long as he can breathe. Hence comes the universal usage of such terms as *psyche*, *anima*, soul, and spirit, all originally meaning breath or wind, and all playing a part in delimiting psychology down to this day.

At an early period, however, the manifestations of life were taken to fall into two classes. The one embraced all sorts of bodily movement, and in due course developed into the subject-matter of physiology, itself a domain belonging ultimately to physics. The other class took in such things as perception, desire, and intellect or understanding; it supplied a topic for what has come to be called psychology.

But trouble arose on trying to submit this topic to exact definition. For various reasons, such terms as soul, spirit, mind, and even psyche, failed to be satisfactory. Nor did the required precision appear to have been supplied by such words as "consciousness", or "experience".

Failing all these attempts at formal definition, however, many psychologists seem in point of fact to have got along tolerably well without it. If they were not able to arrive at the general idea of consciousness, experience, mind, or psyche by any scientific formula, they could still derive it from particular examples, as a child does his first notion of a "ball".

But this was not the end of the trouble. Even when authors did manage to indicate their views with sufficient precision, these views often proved to be widely discrepant from one another. For instance, some psychologists would, but others would not, make their science

include some kind of " soul ". Again, some authorities, but not others, would take in a vast region called that of " unconsciousness " or " sub-consciousness ". Of these and many further cases, we shall see much more later on.

CHAPTER II

RENUNCIATION OF PHYSIOLOGY

§ 1. Jealousy between Sciences of Psyche and of Body. § 2 Attachment of Psyche to Body. § 3. Companionship of Psyche with Body. § 4. Resemblance of Psyche to Body. § 5. Upshot.

§ 1. *Jealousy between Sciences of Psyche and of Body*

As we saw in the preceding chapter, man's first great exploit towards creating psychology was to split himself up into two parts; on the one hand, he conceived his material body; on the other, his mind, soul, or psyche. The science of the material life became known a couple of centuries ago as "physiology". That of the mental life was much earlier called "psychology". But inevitably there arose a misgiving. Does the psyche really admit of being studied by itself? Or must it not rather be taken in intimate connection with the other part of man, his body? The answers given to these questions have been very diverse and momentous. At one extreme, it has been asserted that to link up the science of the psyche with that of the body can do nothing but mischief.

Thus Fries wrote:

> "Let no one fancy that anything bodily either is explained by, or can explain, anything psychical."

So too Beneke:

> "The history of psychology has shown that it has been found impossible for the smallest part of the

> development of the soul (*Seele*) to be explained or constructed out of that of matter."

And no less forcibly in our own day, Th. Lipps writes that the investigation of human nature must necessarily be undertaken from the two sides, psychical and material, quite independently. Between these two, he says, there is a wall of such a kind that from no point of view can the proceedings of both be seen simultaneously. Besides all such authors, too, who protest explicitly that the psyche or mind must needs be studied by itself, others still more numerous follow in the same direction tacitly. Their psychological writings (without so much as an apology for the omission) vouchsafe to the body nothing but the briefest allusions. Such writers may be found among the adherents of all schools of philosophy. They are to be met even among those who ascribe such dominant importance to the body as to have earned for themselves the title of "materialists"; for even these too, despite their ardent desire to depreciate what is mental and to exalt what is bodily, still when actually expounding the former have often sought little or no assistance from the latter. One most interesting case is that of Wundt. Himself one of the leading physiologists of his day, he not only proceeded to entitle his masterwork *Physiological Psychology*, but actually gave in this book such a thorough exposition of the nervous system as has scarcely been rivalled in any psychological publication before or since. His physiology supplies the first part of the work, whilst his psychology takes up the second part. But *from the one to the other there is scarcely any reference*. Even for such physiology as he does carry over into his psychology he subsequently apologizes, as having somewhat disturbed it. And when he writes another book, this time intending to depict psychology in its own proper systematic connection (*Grundriss der Psychologie*, see especially the Introduction), his

physiology disappears altogether!

At the opposite pole to all the preceding mentalists who insist upon studying the mind by itself stand those psychological materialists, as they have been called, who would have all study of the mind eliminated. As modern examples of this attitude may be quoted the "reflexologists" like Pavlov. According to these, the whole content of psychology can be reduced to such mechanical events as coughing or sneezing. If this doctrine is not really new, at least it gets beyond the limitations of common sense.

There has even been proposed a still more extreme view, under the name of "behaviourism". The founder, Watson, writes his creed as follows:

> "The reader will find no discussion of consciousness and no reference to such terms as sensation, perception, attention, will, and the like. These terms are in good repute, but I have found that I can get along without them. . . . I frankly do not know what they mean, nor do I believe that any one else can use them consistently."

He seeks to concern himself solely with the physical action of the environment on the bodily receptors (sensory organs) and with the physical *re*action of the bodily effectors (muscles or glands) on the environment. As to what, if anything, goes on mentally—or even bodily—in *between* the action and the reaction, with consideration of this he claims that he can dispense.

Here is, to say the least of it, a bold bid for economy of explanation. Who can deny that all we know about the perceptions, thoughts, and desires of other persons is at bottom nothing more than inference from their sensory stimulations and their motor reactions? Such inference would indeed seem to be only a fifth wheel to the coach. Why bring this superfluity into psychological science?

Enthusiastic leaders in this movement were, naturally

enough, the so-called animal psychologists. These had long been regarded as outside the pale of genuine psychology, because to them was denied its very basis, which is introspection. But now it seems that these supposed outcasts have in truth the best claim of all to scientific status. The untouchables have been exalted above the priestly Brahmins. The stone which the builders refused has become the head-stone of the corner.

Now as a slogan the term "behaviourism" spread like wild-fire, especially in America. But actual advocates of the doctrine itself, at least as formulated originally, are quite hard to find. The initial ruthless demand that introspection should be abolished would seem to have faded into a mere counsel to make it less conspicuous. Once more is heard the voice of common sense:

> "Not always actions show the man; we find
> Who does a kindness is not therefore kind."

In addition to the two extremes which we have been describing—those who made psychological science wholly mental and those who had the will, if not the power, to make it wholly material—there has been the largest class of all, who desire to see the two fields of study united together. Already with Plato, and even long before, with Heraclitus, Empedocles, and Democritus, we find the explanation of the psyche fitfully eked out by considerations derived from the body; as when, for instance, Heraclitus explains sensations by the "opposition" between the stimulus and the organ stimulated. With Aristotle much the same sort of supplementation occurred, although on different doctrinal lines. Such casual recourse to physiology was cordially taken over by the patristic Arabian, and scholastic writers Augustine, Avicenna, and Aquinas. Nor were the philosophers of the Renaissance, as Huarte, Hobbes, and Descartes—generally so eager to break away from their predecessors

—any less favourable to such a sporadic invoking of the body for the understanding of the mind. But this tendency, curiously enough, was *not* favoured by Locke, physician though he was. Its culminating point was reached rather by Hartley, whose great work constituted the most intimately and genuinely unified study of the mind and body ever yet undertaken. Later on, the introduction of physiology became more desultory again. Conspicuous names have been those of Bonnet, Cabanis, Carpenter, Lotze, Spencer, and Bain. In the psychology current at the present day, the part played by physiology has become smaller still. An interesting contrast can be noticed in this respect between the *Elements of Physiological Psychology* published by Woodworth (with Ladd) in 1911, and his *Psychology* eighteen years later.

§ 2. *Attachment of Psyche to Body*

Since opinions are, and have always been, so violently conflicting as to how far the study of the psyche, soul, or mind must depend on that of the body, it may not be amiss to examine for a moment the doctrines that have been held as to what these two, psyche and body, have really to do with one another. To begin with, let us ask in what manner or fashion the two are, so to speak, fastened together. On this cardinal point, what is the accumulated wisdom of all the ages?

The need for studying the nature of this union was already stressed by Aristotle, when he sarcastically complained that the theories entertained up to his day

> "place the soul in the body and attach it to the body without trying in addition to determine the reason why, or the condition of the body under which such attachment is produced."

As for his own view of the matter, he lays down in general that

> "substance may be viewed, either, firstly, as matter, or secondly, as form (εἶδος καὶ μορφή), or thirdly, as the result produced by a combination of this matter and this form."

And so far we can all follow him pleasantly enough. Everyone knows that the same form, say that of a box, may be manifested in different materials, say, leather or metal. Conversely, the same material, as wood, may assume a great diversity of forms; out of it can be spatially arranged or shaped not only boxes, but also houses, bridges, spoons, and so on indefinitely.

But then he goes on to announce that the "form" of a living body, being its perfect realization (ἐντελέχεια), supplies an adequate account for all its psychic capacities and processes. Truly, a hard doctrine! In what meaning shall a perception of blue, or a desire for happiness, or the thought of infinity be really explained by the "form" (μορφή) of material particle, in this accepted notion of spatial arrangement? Or in any other signification derivable from this? Or, indeed, in any genuine meaning at all? Scarcely, at any rate, in the good sense of the plain man.

Subsequently, however, Plotinus and Augustine abandoned this extremely intimate union of psyche with body as form with material; they turned back to a far looser connection, more akin to the older doctrine of Plato. And at the Renaissance, they themselves were overtopped by Descartes. This time the soul and the body were said to be two distinct substances each acting on the other. But as to the nature of the psyche, this was still characterized by "thinking". He wrote:

> "Because I know with certitude that I exist, and because, in the meantime, I do not observe that aught necessarily belongs to my nature or essence beyond my being a thinking being, I rightly conclude that my essence consists only in my being a thinking being."

Matter (including the body) was, on the other hand, said

to have no other quality than extension; this he took to include movement. The latter, in the typical course of events, was imparted by the stimulus to the bodily organs and brain, thereby causing the mental acts of perception. Conversely the mental events of willing were taken to cause the muscular movements of the body.

Here, it would seem is a doctrine of interaction which bears some resemblance to that which has been adopted by common sense; not only in the time of the Renaissance, but, as it would seem, from the very beginning of history. Descartes was original, however, in that he undertook to indicate exactly how the interaction is carried into effect. In the brain there exists a small protuberance—entitled the pineal gland and shaped not unlike the tumbler commonly used to light an electric lamp—which is not, like almost all other structures, duplicated on the right and left of the body, but instead is single and central. Here it is, he said, that the body and the soul really get to grips with one another. Movement of this button-like protuberance by the bodily "animal spirits" makes the thinking substance think. Conversely, the thinking substance has the power to incline the action of the knob in various directions, thus regulating the flow of the animal spirits and producing any kind of bodily movement.

From the standpoint of physiology, this explanation was unfortunate, since really the pineal gland appears to be exceptionally devoid of useful function, psycho-physiological or otherwise. And further difficulties present themselves. If the thinking substance can do nothing but think, how comes it to be also able to move tumblers? Similarly, on the other hand, if the sole virtue of matter is that of being extended in space, how does it also manage to make the thinking substance think?

Descartes attempted to save his doctrine by adding on to it the reservation that, after all, the interaction does not occur automatically, but only with the special

assistance of God. Certain modern interactionists, as Lotze, however, appeal not to divine wisdom but to human ignorance. He writes:

> "This reciprocal action (between soul and body) is certainly inexplicable, but it is not among those processes whose reality we may doubt on account of their inexplicability."

The immediate successors of Descartes, however, notably Malebranche and Geulincx, took no such refuge in any mutual action that cannot be explained. Since by them too the correspondence between mind and body was admitted to be only explicable by divine intervention, they thought that to explain it by any further influence would be gratuitous and absurd. The most honest course seemed to them to admit frankly that the whole business is miraculous. The functional correspondence between the thinking and the extended substance was, they said, at every moment a new miracle.

But most philosophers have objected to the introduction of miracles in such large numbers. A great effort to obviate this was made by Leibniz, who wrote as follows:

> "Suppose two clocks, or two watches, which perfectly keep time together. Now, that may happen in three ways. The first one consists in the mutual influence of each clock upon the other; the second consists in the care of a man who looks after them; the third consists in their own accuracy. Now put the soul and the body in the place of the two clocks. Their agreement or sympathy will also arise in one of these three ways. The way of mutual *influence is that of the common philosophy* (*Descartes*) but as we cannot conceive material particles, or immaterial species, or qualities which can pass from one of these substances into the other, we are obliged to give up this opinion. The way of care in looking after the agreement is that of the system of 'occasional causes' (Malebranche and Geulincx); but I hold this to introduce

> a *Deus ex machina* in a natural and ordinary matter in which it is reasonable that God should intervene in the way in which He supports all the other things of nature. There thus remains only my hypothesis, that is to say, the way of the harmony established by a contrivance of the Divine foresight, which has from the beginning formed each of these substances in so perfect, regular, and accurate manner that by merely following its own laws each substance is in harmony with the other, just as if there were a mutual influence between them."

This solution of correspondence between body and mind has, however, failed to achieve the success so enthusiastically claimed for it by its author. Philosophers have not found much advantage in replacing many little miracles by one big one.

A far greater philosophical following has been obtained for a solution put forward not long afterwards by Spinoza, and sometimes known as " parallelism ". Discarding the whole doctrine that the thinking soul and the extended body are two separate substances, he proclaimed instead that they are but two aspects of one single substance.

> " The mind and the body are one and the same thing, conceived at one time under the attribute of thought, and at another under that of extension."

But although this doctrine has so greatly pleased the philosophers, it appears less congenial to the plain man. When he wants to find out why the mind and the body are so different he gets but cold comfort from being told that in some inconceivable way they are really the same.

With these five typical doctrines—which may be called formalism, interactionism, occasionalism, pre-established harmony, and parallelism—the capacity of psychologists and philosophers for conceiving the psyche and the body as two co-ordinate things would seem to have exhausted itself several hundred years ago.

Let us then pass on from all these doctrines to those where only one of the two things is allowed to be fundamental; in this sense, we turn from "dualism" to "monism".

If such preference be for the body, we have *materialism*, which asserts that physical matter is the alpha and the omega of real existence. The mental processes are portrayed as destitute, not only of any substance (so confidently attributed to them by Descartes), but even of any influence at all. They are called mere "epiphenomena" in the world; nothing more than "sparks thrown off by the material engine", having no real effect whatever upon its working. Or again, they are described as: "a mere foam, aura, or melody, arising from the brain, but without reaction upon it".

Nor has this doctrine been the prerogative of any special time or place. In particular, it is not essentially modern. A notable ancient trio of authors who thus exalted matter as the sole real cause of events were Democritus, Epicurus, and Lucretius. In the Renaissance, long afterwards, conspicuous leaders along the same path were Gassendi and Hobbes. Later still, we come across Lamettrie and Holbach; then Büchner, Lewes, Moleschott, Shadworth Hodgson, and Vogt. And although subsequently the name of materialism somehow fell into dishonour, the doctrinal tendency itself would seem to have remained very much the same to this day.

There has still to be considered the opposite and idealistic version of Monism; it is that wherein all honour is given to the psyche alone, whilst matter is taken to be of little or no account.

First in the field here would seem to have come the Indian Brahmins, who declared that all material bodies as they appear to our senses, are but *Maya* or illusion. A similar doctrine seems to be at least implicit in many

utterances of the old Greek sophists and sceptics. Still more apparent is it in the doctrine of Locke, who asserted that primarily we can only know our own "ideas". But for its most definite, rational, and complete exposition we have to thank the idealism of Berkeley, according to whom:

> "When we do our utmost to conceive the existence of external bodies, we are the while only contemplating our own ideas. But the mind, taking no notice of itself, is deluded to think it can and doth conceive bodies existing unthought of or without the mind."

Kant followed this up by making a distinction between idealists of two kinds, calling the one "transcendental" and the other "empirical". According to the transcendental view, what is seen is not real. According to the other version, what is real is not seen. But neither of these are paths along which the plain man would be wandering.

Still more caviare to the general has been the teaching of Brentano, that in perception, desire, or reason, we must regard only the "act", not the "content", as being psychical and, therefore, as appertaining to psychology. Psychical are, for instance, the hearing of a tone, the sensing of warmth, and the imagining of a griffin. Physical are the tone, the warmth, and the griffin themselves. But, protests common sense, how can things be physical which may not exist at all? Brentano counters that physical things never do exist! A suggestion of Alice in Wonderland!

On the whole, the problem as to how the psyche is attached to the body (and to matter in general) has shown us but gloomy prospects. For many hundreds of years, there appears to have been little or no movement. Not one of the theories has been generally admitted, or even generally denied. The sole consider-

able success would seem to have been achieved by the view that the two interact upon each other. For this has at least been steadily accepted by common sense, whose craving for evidence is not excessive. And into this theory, indeed, even the psychologists, physiologists, and philosophers seem to lapse back again—whenever, for a moment, they forget their determination to believe otherwise.

§ 3. *Companionship of Psyche with Body*

The waters in which we have been fishing are extremely deep. Let us turn to others less so. If psychologists can by no means discover the fundamental nature of the attachment which fastens psyche and body together, at least they may be able to observe which manifestations of the one *accompany* which of the other. And herewith we should at any rate reach everything which for the main mission of empirical science—that of predicting the future—is absolutely indispensable. We needs must know, What goes with What. With this much information at their disposal, scientists can at least get along, however lamely. Without it, they are brought to a standstill. Connection by bare co-existence is, then, the very least to be demanded (see Chapter XXVII).

A distinction, however, is required between direct and indirect connection. Suppose that anyone presses the button of an electric bell. The pressure will naturally be followed by a ringing. But the button is only the indirect cause of the sound; the actual striking of the bell is the direct cause. What then has been discovered through the ages in the problem of localization in this latter sense? Which, if any, of the bodily excitations are the *direct* accompaniments of the mental ones?

One such tie-up is readily accepted at any rate by common sense; that of sensation to the sense-organs, or

" sensory receptors " as they are nowadays called. To this day, the plain man trustingly believes that he sees things with his eyes, hears with his ears, smells with his nose, and so forth.

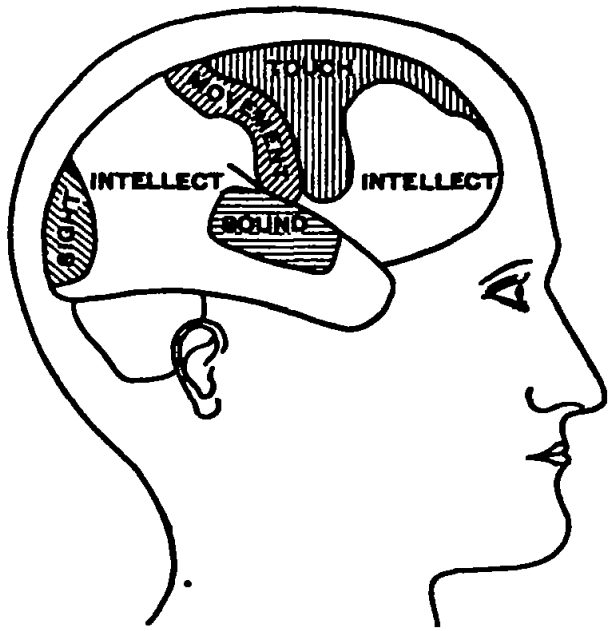
But the earliest psychologists tried to improve on this. A notable instance was the theory of the physician Alcmaeon, about 500 B.C., that the sight of an object is produced not in or by the eye itself, but by something that issues out of this and meets the object somewhere half-way. Another instance, as late as Plato, is that the sense of smell lies somewhere between the head and the navel.

Even before the time of Aristotle, however, there gradually developed a more successful view. This was that, bridging over from the material sensory receptors to the seat of the immaterial mental processes, there exists a mediating link, something extremely tenuous, some " fire ", or " air ", or " spirit ", or, in modern terms, " nerve-impulse ". The channels by which this was conducted were at first taken to be the arteries. But as early as 300 B.C. the discovery was made of the sensory nerves which perform this office.

As to where the union itself lay—the place where matter and mind really do come in direct mutual contact—little was known, or even surmised, for more than two thousand years after the discovery of the sensory nerves had been revealed. There seems to have only been a vague credence—as for instance by Descartes—that the situation was somewhere in the middle of the brain.

But eventually this guess turned out to be particularly unfortunate. Sensory perception showed itself to be specially dependent not so much on the middle of the brain as rather on its *outer* layer, or " cortex ". In the case of sight, the portion of this layer concerned was right at the back of the head. In the case of sound, it was

behind the temples. In general, the doctrine current at the end of the nineteenth century is shown in the following diagram :



Still later information, however, has indicated that these cortical areas serve only sensory perception of advanced kind as that of shape. The cruder operations, such as the mere differentiation of light and shade, appear to depend more on the central part of the brain known as the thalamus.

Turning from sensory perception to the intellect, we find that here also a checkered career has befallen the attempts to find a bodily situation. By some of the earliest philosophers, this faculty was localized in the region of the heart, and was even named after that organ (φρένες). With Plato, however, this eccentric localization disappeared. Instead, the power of thinking was taken to reside in the head. Even common sense must have pointed cogently in this direction. Ordinary life produces plenty of cases where damage to the head affected a person's reasoning power. Whereas damage to the heart would seem to affect almost every power

except that of reasoning. Nevertheless, and despite all his physiological training—or perhaps even because of it—Aristotle went back to the older localization in the heart. The brain, on the other hand, he described as the most bloodless and inert organ of the body. Seemingly, his medical experience had shown him that, when the brain is laid bare, very considerable incisions may be made in it without being felt by the patient. This gross mislocalization recurred from time to time for a couple of thousands of years;—surely, here a little learning was a dangerous thing. But general opinion veered more and more towards a seat in the brain. And by the seventeenth century, Malpighi was even able to connect thought specifically with the grey matter of the cortex.

Still greater difficulty has attended the localization of Aristotle's third great faculty, that which he himself entitled "orexis", but has commonly been rendered as "desire". It includes such things as are at present called impulses, appetites, drives, urges, and volitions, as also emotions, pleasures, and unpleasures.

In this localization again, even common sense has much to go on. The least tutored savage was observant enough to note that the onset of intense emotion tends to be accompanied by disturbance in the neighbourhood of the heart. Widely noticed, too, must have been the commotion which the sensual appetites are apt to produce in the region of the belly. Small wonder, then, that Plato and many others for over a millennium took the heart to be the residence of such traits as courage; the belly to be that of the appetites. A kindred view, but supported by a wealth of acute observations, was long afterwards developed by Malebranche. In a somewhat cruder form it has been brought to modern fame by Lange and James. But at the present day most authorities—following Head—are inclined rather to localize

emotion (together with the more primitive kind of sensation) in the centrally lying " thalamus ".

Most difficult of all becomes the problem of localization when we pass on from the states of emotion to the acts of willing and, in general, to character. One famous attempt at solution ran as follows. The essential character of will is to induce the organism to move. Accordingly, the act of willing must consist of the feelings which accompany the passage of the nerve-impulse from the brain down to the muscles.

This doctrine received its most distinct formulation and strongest insistence from Bain. It was advocated even by Wundt in his earlier works. But nowadays it has fallen into oblivion. Nor has good fortune attended the later suggestion of Wundt, that something of the nature of a controlled will was served by the frontal region of the brain. Instead, pathology has indicated rather that disturbances of will may accompany lesions of almost all regions.

But if to this day so little is known as to what part of the brain influences volition, such influence has none the less shown itself to be surprisingly thorough. The following is a typical case of character being profoundly altered by the brain disorder known as general paralysis (and probably due to syphilitic " spirochaetes ") affecting much of the brain and especially the tissues of the cortex :

> " A married man, 37 years old . . . had always been a placid man, but now he became argumentative, and would screech and shout on the slightest provocation. . . . He became excited and resistive, and was unsteady on his legs. . . . He sat up all night writing poetry which he copied, and which he would send in an unstamped envelope to his daughter. He hunted through ashboxes in the street, and brought into the house rags, rotten fruit, etc. A day before he was sent to hospital he was laughing and talking to himself all day, and stood naked before his children."

Another type of case, connected especially with lesion of the basal ganglia, has been supplied by epidemic encephalitis as manifest in such conduct as the following:

> "restlessness, garrulity, meddlesomeness, excessive curiosity, erratic but active attention, foolish mirthfulness, irritability, temper-tantrums, scolding, mischievousness, destructiveness, abusive language, smearing with faeces and urine, micturition on surrounding persons, violence, attempts at murder and arson, cruelty to children and to animals, truancy, vagrancy, begging, dishonesty, pilfering, and precocious erotism (sometimes with precocious puberty) with obscene language and conduct, including attempts on adults and small girls. The children seem to be very literally transformed into 'little devils.' Punishment has no effect whatever. Asked why he does these things, the child will answer that he does not know, or that 'something in me makes me want to do it,' as one has expressed it. There is no evidence of shame, or of a sense of responsibility for their actions."

Curiously enough, however, the significance of these cases has not even yet penetrated down to common sense. To call a person "brainy" has still almost exclusive reference to the efficiency of his thinking, whereas it ought to refer just as much to his feelings, impulses, and volitions.

On the other hand, excessive importance would seem to have been claimed by some physiologists for the glands of internal secretion, such as the thyroid, the pituitary, the adrenals, the pineal, the testes, the prostate, and the ovaries. These it is said

> "have been discovered the real governors and arbiters of instincts and dispositions, emotions and reactions, characters and temperaments, good and bad."

Truly enough these glands have been found to exercise—and it is one of the most important discoveries of modern physiology—an amazing influence upon the

psyche in all its manifestations. But we must remember that, being poured into the blood, the secretions quickly pervade the whole organism. They therefore afford little or no light on the problem now before us; that is to say, the problem as to where such an influence is *directly* exercised. With regard to bodily localization of mental functions, accordingly, the study of these glands has up to the present time been almost useless.

On the whole, our preceding account of mental function in the brain has been limited to a general outline. We have only discovered that different large classes of mental operation depend more or less intimately on different large areas of the brain. We still need to inquire how these areas are constructed, and how they are connected up with the remainder of the body.

A solution of these problems has been sought in regarding the whole nervous system as analogous to a telephone exchange. As any subscriber can start a current which runs along wires to the exchange and from thence is transmitted to other subscribers, so too, it was thought, any sensory organ starts excitations which then move along the connecting fibres to the brain area, and thence pass by other connecting fibres to the motor organ.

But if the nerve fibres are really nothing but channels of physical excitation, how do they ever give rise to anything mental at all, even the simplest sensation? Still less adequate are they to account for the mental activities of generalizing and remembering (as shown especially by v. Kries). And far more damaging still has been the revolutionary work of Lashley, which already finds wide acceptance. In his own words:

> "The facts of both psychology and neurology show a degree of plasticity of organisation, and of adaptation in behaviour which is far beyond any present possibility of explanation."

He goes so far as to suggest drastically that :

> " If we could slice off the cerebral cortex, turn it about and replace it hind side before, getting a random connection of the severed fibres, what would be the consequences on behaviour ? From current theories (those of the telephonic system) we could predict only chaos. From the point of view which I am suggesting we might expect to find very little disturbance of behaviour."

From this account of the various endeavours that have been made to ascertain what bodily processes go hand in hand with the mental ones, our present information would appear to be extraordinarily vague and precarious.

§ 4. *Resemblance of Psyche to Body*

So far, we have encountered two great problems in the relation between the psyche or mind and the body. The first and more fundamental asked *how* the mental and the bodily events are linked together. The second and more practical inquiry was only as to *which* of them are directly interlinked. But there remains a third question closely akin. In what way, if at all, do the mental and bodily events *resemble* each other ?

The principle at issue supplied one of the most keenly debated topics in ancient times. The philosophers were divided into two great camps (not to mention numerous trimmers and waverers). The one maintained that all action of one thing on another is due to similarity. The other was, that it derives, on the contrary, from contrast.

Theophrastus depicts the controversy as follows :

> " The one party is persuaded by the thought that other things are, for the most part, best interpreted in the light of what is like them ; that it is a native endowment of all creatures to know their kin ; and furthermore, that sense perception takes place by means of an effluence, and like is borne toward like.

> "The rival party assumes that perception comes to pass by an alteration; that the like is unaffected by the like, whereas opposites are affected by each other. So they give their verdict for this (idea of opposition). And to their mind further evidence is given by what occurs in connection with touch, since a degree of heat or cold the same as that of our flesh arouses no sensation."

In this way it was that the champions of likeness explained the fact, that a blow on anyone's eye may make him "see stars". For this experience was taken to show that the eye can generate physical light, and on this account can be stimulated by and perceive luminous objects (both as they really are and as they appear). Even more convincing was the discovery by the ancient inquirers that the retina carries a physical image which almost exactly corresponds with the visual object. Their only serious trouble was that this image is upside down. Over this latter paradox psychologists worried themselves at all times (in fact, some of them are doing so still). No less ingenious similarities were anciently found for the other senses also. Thus, the ear was taken to hear resounding bodies because of itself possessing what looked like a minute resonating gong.

The preceding employments of the principle of likeness to explain the faculty of perception are comparatively commonplace. Not so was the usage of this principle by Plato to explain how the faculty of reason came to be located in the head. Reason, he said, is a perfect thing. It therefore ought to reside in the head, because this, being round, has the most perfect shape.

Later, when Aristotle shifted the localization of thought over to the heart, the same principle of likeness or analogy again lent its aid. For instance, he remarked that "dwarfs and those who have a greater development in the upper parts of the body have poorer memories than those of the opposite type, because they have too

great a weight pressing upon the organ of consciousness". And though little that Aristotle did was found to be right by Malebranche, still in respect of such analogies between mind and body the latter sage vied with the former. For example, he explained that the ineptitude of women for penetrating deeply into truth comes from their brain-fibres being too soft and delicate.

More in consonance with modern views, however, has been the analogy of mental with physical processes as advanced by Hartley. The effect of a sensory stimulation was believed by him to excite vibrations in the sensory organs, which are then propagated along the nerves to the brain. By dint of being often repeated, these vibrations beget in the brain a disposition to miniature vibrations or "vibratiuncles". And when any two stimulations, A and B, are generated in different places at the same time, then each motion will tend with time to conform with the other. Such a physical association formed between different motions was taken to agree with and explain the mental association between different sensations.

This doctrine of resonance was afterwards ingeniously applied by v. Kries as a hypothesis to explain the mental feat of generalization. He wrote:

> "We can perhaps suppose that the repeated simultaneous vibrations of two tones on a violin so modify its structure that, whereas originally their co-occurrence disturbed and hindered them, later it was no longer a disturbance, but even a help."

In this manner, he goes on to explain, there may out of many particular and confusing experiences of individual things eventually emerge the clear idea of a general class. Still later, this same hypothesis of resonance was cleverly utilized by Head, to explain the disturbance which spinal injury causes to sensory perceptions. The nervous impulse, after passing from the sensory organ back to

the spine, was not, he suggested, continued beyond a certain level. Instead, each different character of the sensory stimulus now travelled onwards by a different fibre.

> "It is as if the gallery of a concert hall were fitted with a series of resonators, each of which was tuned to a certain note. Each resonator would pick up a peculiar tone, whether it was produced by the strings, the brass, or the wood-wind."

Among other hardy endeavours that have been made upon occasion to portray the resemblances of body to mind may be cited the view of Eckhartshansen, that the human blood contains a constituent ("gluten") which is of the nature of sin. Here belongs, too, the analogy that has been suggested between the mental manifestations of attention and the physical conceptions of energy. Again, there are the still bolder attempts of B. Robertson, Piéron, T. V. Moore, and Gulliksen to explain remembrance in terms of organic chemistry.

By certain other recent authors the search for physical principles of analogy is promoted from a working hypothesis to an explicit dogma. The two kinds of events, mental and bodily, we are told by Koehler, *must* be taken to possess "congruence or isomorphism in their respective properties"; and in this way the nature of the bodily processes not observed in themselves can confidently be deduced from that of the mental ones which do admit of observation. One example he describes in detail; it is that of the sight of a printed page. Mentally, this presents sharp outlines. By virtue of the postulated "isomorphism", he infers that the physiological process must also present sharp outlines; and to do this, it must keep its constituents sharply separated like oil and water. In order to have this effect, he postulates some (unknown) "separating forces of contact". Among other such analogies proceeding from various followers of this

psychological school is one which seeks to explain volitional experience on the physical principle of "least action". But we cannot enter here into the details of this ambitious effort.

We can hardly, however, omit one further use of such analogies; the hardest worked of all, that of Pavlov and his school. As a typical example of their work, we can take the case of a dog being repeatedly shown the letter T when its food is just about to be given to it, whereas an O is shown when this is not so. The result of such training is that, on the T being shown even without the food, the dog's mouth will begin to water at once. In common sense this fact would be described by saying that the dog learnt to distinguish between the two letters and accordingly had acquired correct anticipations of the food. But the Pavlov school propose to say instead that the dog possesses some (unknown) physiological "analysers" which let pass the T's but not the O's!

It thus appears that on this principle of mind-body likeness or analogy there have been expended no little labour and no small imaginative power. Nevertheless, the results may still be found unsatisfactory, not because they go too far, but rather because they do not go far enough. They have in all, or nearly all, cases referred solely to the quantitative sides of both mind and body. They have thus left out of account their far more important qualitative aspects. And just in these qualitative aspects it is that the two display such inexplicable differences. There seems to be but little sense in the ancient teaching of Democritus, for instance, when he identifies an acid taste with the movement of atoms that are "angular, winding, small, and thin". Nor is there much improvement on turning to modern times, when Spencer would explain the taste or any other mental experience as a compound of neural "shocks." And equally

lacking in mental explanatory value would appear to be the whole system of material occurrences, as exemplified in the first law of Newton:

> "every body perseveres in its state of rest or of uniform motion in a straight line, except in so far as it is compelled by forces to change that state."

Physical events, including all bodily processes, are conceived to consist of nothing whatever except just such motions and forces. How, then, can they rationally be credited with a thing so utterly different from them as is consciousness?

Again, all the mental processes present at any rate the appearance of belonging to some central self or ego, whereas the body does not even suggest anything of the sort.

Such, then, is the final situation. On the one hand, a psyche, mind, or soul that is conscious, that knows, feels, and wills; on the other, a complex of material particles which, when the last word is said, do nothing but push and pull each other; in fact, *are* nothing but pushers and pullers. Surely, such a psyche and such a body are the strangest of bedfellows! Imagine every cell to be magnified far beyond the dreams of the ultra-microscope, let every atom become as large as the solar system, and every electron bigger than a house. Suppose, further, that all is photographed and the result displayed with slow motion, till every twist and turn, pushing or pulling, became as familiar as one's own writing-table. Should we after all have really advanced one hair's-breadth towards understanding the essential nature of the psyche itself; that which is happy or unhappy, which has desires and ideals, which can attain to universal truth? To answer lightly "Yes" is perhaps to take up ground where angels might fear to tread.

§ 5. *Upshot*

In the preceding chapter we began by telling of a conflict which has persisted without abatement since the very beginning of psychology, and even earlier. This is the dispute as to how far our knowledge of the psyche or mind can be served by that of the body.

We then proceeded to record the chief ways in which the two, psyche and body, have been supposed to be linked together. In this reference we encountered the widest differences of doctrine about their respective claims to reality. At one extreme, only matter and therefore body are taken to be real; mind is but " sound and fury signifying nothing ". At the other extreme, nothing is real *except* mind, matter being only a foolish illusion. To this dispute in the sphere of philosophy may in part be attributed the aforesaid conflict in psychology. The belief that matter alone is real could scarcely help leading to a strong bias in favour of making psychology physiological. With the reverse belief there naturally went the reverse bias. On the whole, the acceptance or not of any of the rival doctrines on this matter would seem to be less a question of evidence than of faith.

But then we went on to consider how far the two conditions have as yet been satisfied which are most essential in order that the knowledge of bodily processes should adequately serve that of the mental ones. The first condition was that we should know which of the one kind accompany which of the other. The second was that the two should be found sufficiently alike or congruent to render their connection intelligible. On both these counts, psychology has up to now proved lamentably defective. So much so that all the more ambitious attempts to rescue the science of the mind by appeal to that of the body have ended only in disaster. Even Lashley, perhaps

the wisest and most successful of all investigators in this direction, is reduced to saying that

> " for immediate progress it is not very important that we should have a correct theory of brain activity, but it is essential that we shall not be handicapped by a false one."

But finally, it must be insisted that all such pessimism about what the science of the mind may expect to learn from that of the body would seem to refer solely to dogmatic information. If, instead, account be taken of cautious suggestion, or of admittedly tentative hypothesis, then surely the aid that psychology may hope to obtain from physiology will be disputed by few indeed. Abundant testimony will be encountered later on. (Chapters XII and XXVII.)

CHAPTER III

RENUNCIATION OF PHILOSOPHY

§ 1. Urge to Ruminate. § 2. "Reality" and "Appearance". § 3. Being and Becoming: Causality. § 4. The One and the Many. § 5 Form, Idea, Universal § 6. Truth, Goodness, Beauty. § 7. Positive Science and Opportunism. § 8. Upshot.

§ 1. *Urge to Ruminate*

In the preceding chapter we have seen psychology falling into many difficulties, of which at least one problem—the nature of the attachment of mind to body—shows little prospect of yielding to scientific investigation. This problem has been characterized as "philosophical". But it is by no means the only one of such a kind that may have a vital bearing on psychology. Let us, then, for a short while turn to philosophy, see what it is all about, and consider how psychologists do or should handle it.

One of its most conspicuous and surprising features is the world-wide divergence of opinion as to its value. At a certain period of the Middle Ages, it was the subject of extraordinarily animated public discussions. At these it would happen, according to Vives, that

> "the disputants shout till they are hoarse, use the grossest and most insulting language, grimace at one another, and, when words and threats fail, have recourse to their fists. They hit, spit, kick, and even use clubs, so that many get wounded, or killed outright."

Even kings did not scruple to join in the controversy, and

indeed to support their views by the cogent argument of prison, or indeed the stake.

In those days, no doubt, the principal spur to such a lively interest in philosophical questions came from their bearings on certain disputed tenets of religion; especially the Trinity, Predestination, Grace, Justification, and the Sacraments. But even when this source of interest had to a large extent subsided, philosophy continued to excite in many of the highest authorities an unparalleled enthusiasm. It was declared to reveal all that is most worth knowing, and to reveal it in the only way that deserves believing. But with other authorities it, on the contrary, fell into acute discredit. Frederick the Great, for instance, gave expression to his feelings as follows:

> "Speaking in a philosophic sense, we are absolutely acquainted with no one thing. We suspect there are certain truths of which we form a vague idea, and to these we attribute, by the organs of speech, certain sounds which we call scientific terms. With these sounds we satisfy our ears. Our mind imagines it understands them, yet, being well examined, they present nothing but confused ideas to the imagination; so that our philosophy is reduced to the habit, in which we have indulged ourselves, of employing obscure expressions and terms, the meaning of which we but little comprehend; and to profound meditation on effects, the causes of which remain perfectly unknown and concealed."

Even pithier was the verdict of J. Sergeant:

> "The world has been sufficiently pestered already with books on philosophy, nay, volumes blown up to a vast bulk with windy and frothy probabilities, and petty inconclusive topics."

As regards the appreciation of philosophy at the present day, and in particular by psychologists, this

seems to be on the whole—with many notable exceptions—decidedly unfavourable.

But curiously enough, the very persons who have been loudest in antagonism to philosophy—employing, in fact, the word "philosophical" as a general term of opprobrium—are generally just those who appear to have studied philosophy least, but who nevertheless really depend on philosophical dogma most. Outstanding instances are most materialists, and also the plain man.

What, then, is the nature of this intriguing and paradoxical thing, philosophy? Little light is thrown on the point by definitions, since these are nearly as numerous as the definers. More help can perhaps be derived from the historical viewpoint. Originally, the "philosopher" meant him who loved *σοφία*, which last is a word usually and perhaps best rendered by "wisdom". Both the Greek and the English words assuredly indicate something more than bare knowledge. They mean, rather, the special kind of knowing that men have always tried to illustrate by such epithets as "deep" or "profound"; it is the knowledge that penetrates "below the surface" or "behind appearances".

Now, the reason for this metaphor is not far to seek. In numberless experiences of daily life, only the upper or frontal side of an object is open to view. From this mere surface, the great majority of men commonly jump to conclusions concerning the nature of the whole solid thing; and about immaterial situations they behave in an analogous way. Whereas the man "fond of wisdom" aims at probing the object through to the back or bottom. When baffled at first essay, he tries again and again. The more intractable a situation—practical or theoretical—the more persistently he thinks and re-thinks about it. He is, above all things, inclined to *ruminate*. This tendency it is, then, which would appear to constitute the most general characteristic of the philosopher. His maxim runs:

" Errors, like straws, upon the surface flow ;
He who would search for pearls must dive below."

To some extent, his persistence only holds him fast in a morass of verbal equivocations ; or else makes him spin round after his own illusions, like a puppy trying to catch its own tail. But often he does indeed hunt after problems that are worth while, both for their own sake and for their bearings on the study of the psyche. The chief of these problems will be summarily indicated in the rest of this chapter.

§ 2. *" Reality " and " Appearance "*

First of all comes the great question, What is " real " ? Here is a problem whose solution is on all sides acknowledged to be the very core and centre of philosophical strivings. It supplies a gum that will bear the philosopher's chewing and re-chewing almost to any degree.

Still it by no means belongs to philosophy by exclusive right. Like almost everything of philosophical interest, it too receives a cordial—however undiscerning—welcome into commonest discourse. Indeed, the man in the street is apt to take no little credit to himself for knowing much more about " real " life than does the philosopher !

If, as is usually helpful, we seek for some preparatory illumination from the words at issue, the result is rather unexpected. Obviously, indeed, " real " is derived from the Latin *res*, and this is always translated as " thing ". But whilst the Latin word seems to have come from *reor* (I think) the English one, curiously enough, signified " assembly ". Thence the terms were transferred to the business with which an assembly has to deal. By yet another shift, they became any distinguishable object of thought. Finally and universally—by report of the dictionaries—they have arrived at meaning in

common usage that which " is " or " exists ", " happens " or " occurs ". Much the same wandering appears to have befallen the German word for " thing ", namely, *Sache* (from *sagen*, to speak). As for the complementary term " appearance ", the history of this would appear to be comparatively straightforward. It seems to have meant that which comes forth and so becomes visible.

From all these linguistics, let us pass on to common sense. The plain man everywhere sees what he takes to be one and the same real thing presenting many different appearances, according to viewpoint, lighting, illusion, and so forth. But then comes on the scene the ruminating philosopher, who achieves a prodigious generalization. Going far ahead of the plain man, he declares that one or very few real things underlie *all* appearances throughout the universe.

In this way, as is well known, the ancient sages admitted the real existence of only four different things: earth, air, fire, and water. This doctrine, or something akin to it, seems to have conquered the whole civilized world, the East no less than the West.

But still earlier perhaps was heard at Miletus the voice of Thales, first of the Seven Wise Men, teaching that in reality there are no different kinds of thing at all, but one kind alone, water. That this can be metamorphosed into air and back again was probably inferred by him from the way in which it can pass into steam and then re-condense. Its identity with earth may have been suggested by the fact that this first absorbs rain and afterwards apparently returns it to air as rising mist. Even the transformation into fire and back seemed to be indicated by the curious rays that often stretch between the sea and the sun.

Naturally enough, such a brilliant theory of Thales soon bred imitators. Reasons were found by his own

pupil, Anaximander, for declaring the one real thing to consist of what he calls the "indeterminate" (ἄπειρον) —a wonderful anticipation, by the way, of Herbert Spencer's "indefinite, incoherent, homogeneity". But next *his* pupil, Anaximenes, proposed as the one universal reality "air". *His* pupil, Anaxagoras, made the curious advocacy of what has been (inadequately) translated as "mind", and which is not without bearings on the modernly favoured view of a universal "mind-stuff". But whilst all these theories were being brought forth at Miletus, there was a rival school in Italy, including Empedocles, which more romantically pleaded for the twin-elements "love and hate", a doctrine suggestive of some modern "hormic" theories. Of such hypotheses there seemed to be no end. Any of them could be proposed, and any opposed; for all had about the same amount of genuine evidence—almost none.

One day, however, there came along one of these doctrines, which was destined to enjoy a far more eventful career. Democritus, yet another Milesian, after spending his not inconsiderable patrimony in learning all that then was to be learnt, began himself to teach, and as follows. The sole really existing things are extremely small and numerous atoms. These do not differ in quality—indeed, do not possess any—but only in arrangement (σχῆμα), size (μέγεθος), and position (θέσις). They are imperishable, unchangeable, and simple. They exist in perpetual movement by the blind necessity of inertia. Out of their meetings and separatings are in truth constituted all real events in the universe. Even "souls" are no more than such atoms, but of exceptionally small size. Such, then, was the doctrine of Democritus. It is essentially the "materialism", or the "mechanical" view of the world, considered by us in the preceding chapter. Altogether, it was surely a stupendous theoretical edifice—especially for a man to

build up using but a pennyworth of observation to a pound of excogitation.

At first, however, but little came of it. Save for the enthusiastic adherence of Epicurus and his followers, few people recked much of Democritus for some two thousand years; unless, indeed, we can take as a tribute to his greatness the fact that Plato tried hard to destroy every copy of his books. But with the coming of Galileo and his followers a mighty change took place. By him this mechanical doctrine was endowed with wonderful virtue, in that it was rendered amenable to quantitative treatment; it was brought within the purview of *mathematics*. By specifying in detail the arrangements, sizes, and positions of the atoms, the course of events could be submitted to definite calculation, and then the result could be compared with actual observation. Should the two prove discrepant, then the arrangements, sizes, and positions could be specified anew and more suitably. Thereafter, physicists vied with one another in representing the supposed structure of the atoms by mechanical models. And in practice, at any rate, the whole theory led to extremely important explanations, anticipations, and inventions; in fact, to all the marvels of modern physical science. Accordingly, it acquired an almost unbounded prestige. And in the last chapter we have seen how fateful this prestige could become for the welfare of psychology.

But all the time that this materialistic doctrine conceived by the philosophers was serving so extraordinarily well the needs of the physicists, it was far less successful in satisfying the philosophers themselves. These have tended rather to evolve the great contrary doctrine, that which in the preceding chapter we designated as idealism.

From the beginning, the Democritean view suffered from one radical weakness. This lay in admitting solely the characters of space and time to be real. According

to it, when anyone looks at a leaf, for instance, the size, shape, and texture are real external facts, but the greenness is only subjective, a mere appearance. Owing to this restriction to space and time, all the *qualitative characters*, such as colour, pitch, and so forth, had somehow or other to be got out of the way. To this end, they were said by the original Democriteans not to exist, but only "to be thought to exist". In the later language of Galileo, they were only subjective sensations; as presentations of the external world, they were unreal. Even for Locke, they constituted no more than "secondary" attributes of matter; time and space alone being "primary". But what was sauce for the goose might perhaps be so for the gander. If the qualitative characters could be so easily regarded as mere appearances, why not those also of space and time? In their case, just the same grounds could be adduced for suspecting unreality; the shape of a thing almost as much as its colour, will vary according to the viewpoint and be liable to illusions or even hallucinations. On this basis, all perceptible characters, primary and secondary alike, become appearances and nothing more. And just this was the conclusion reached by the leading pupil of Democritus himself, namely, Protagoras. For him, human perception and thought are both subjective throughout; "of all things the measure is man". Often scotched but never killed, this subjectivism underwent a remarkable revival in the Middle Ages with John Scotus Eriugena, who held that things exist only inasmuch as they are known. Much more effective were the still later protestations of Berkeley, that shape, size, and position when abstracted from colour, sound, and so forth, far from being the sole real things, are absolutely inconceivable. To the same effect was the soon following mordant criticism of Hume. This in turn elicited the colossal work of Kant, whereby all attempts to

demonstrate the objective existence of the characters of space and time were, according to his followers, definitely refuted. From a broader standpoint, F. Lange was able to array convincing proofs that, however serviceable as a makeshift basis for physical measurements, the mechanical doctrine was quite inadequate as an account of the universe.

Finally, on top of all this long revolt of the philosophers against the physicists, these latter themselves have now ended by finding their mechanical concepts of space and time strangely crumble beneath them. Under the stress of recent scientific progress—the mathematics of an Einstein and the experiments of a Michelson —one of the most eminent authorities, Jeans, has been reduced to saying of modern physics that

> " The outstanding fact would seem to be that mechanics has already shot its bolt and has failed dismally, on both the scientific and philosophical side."

After this devastating attack made by the philosophers, and at last even by the very physicists, upon the reality of the space and time characters of physical things, what is to become of these things, these alleged " substances " themselves ?

As for the physicists, they seem to be seeking any port in the storm, and not to care greatly if in so doing they throw all their baggage overboard. The writer just quoted goes on to say :

> " A mathematical formula ; this, and nothing else, expresses the ultimate reality."

Does not such a pronouncement go back to a stage of philosophy that most writers had hopefully taken to have expired with Pythagoras? Another outstanding physicist, Eddington, writes no less frankly :

> " The external world of physics has thus become a world of shadows. In removing our illusions we have

removed the substance, for indeed we have seen that substance is one of the greatest of our illusions."

And after this fashion the long-supposed highest reality

" Has softly and suddenly vanished away,
For the Snark *was* a Boojum, you see ! "

Surely, an embarrassing situation ! The only point on which the authorities seem to agree is that they will continue to disagree. What is psychology—struggling to become a genuine science—ever going to do about it ?

§ 3. *Being and Becoming : Causality*

Nor is that the end of the trouble. Intimately connected with the preceding search for " reality ", has been another hardly less perplexing quest ; namely, after permanence.

Here, as before, the plain man finds little to worry about. Permanent for him are persons and material things. Changeable are only their states. His wife may one day be kind and another day cross ; his house may alter from being cold to being warm ; still he continues to have, he confidently thinks, the selfsame wife and the selfsame house.

Not so, the ancient philosophers. Some of these were greatly troubled by discovering here, as they believed, a fundamental contradiction. In so far as anything truly remains the same, any seeming change—they told the world—must needs be illusory. The essential nature of the universe, they declared to consist in unaltered and unalterable Being. " Only Being is." " Birthless the world is and deathless." " All is full of Being, there is no defect in it." So spake the sages of Elea. One is reminded of the familiar biblical passage : " Before Abraham was, I AM ". And not a little of the Eleatic doctrine passed over to Plato, by whom the most real

things were taken to be ideas on the ground that these alone remain ever the same. Nor is the doctrine without grave practical issues; for instance, the permanence of the idea would appear to afford strong support to the belief in the permanence or immortality of the soul.

But forthwith—and on about as good evidence—other philosophers asserted just the opposite. The "over-weening" Heraclitus roundly declared that "All things come into being by conflict of opposites, and the sum of things flow like a stream"; "Change is a path-way up and down, and this determines the birth of the world". In such wise the philosophers split up into two camps; the one under the banner of Being; the other, under that of Becoming.

In the course of a century or so, the battle died down—chiefly, it seems, owing to general weariness of it. But on the whole, the Being-ites had got the better of the contest. The changes alleged by their opponents would, they urged, be sheer miracles; for such changes would imply that something which existed could cease to exist, and that something which did not exist could come into existence. Both these events were taken to be ruled out of court by a proposition that had dominated philosophy since at least the day of Democritus. This was to the effect that "Nothing is created out of nothing, and nothing can be destroyed so as to become nothing".

A more subtle way to meet the question as to whether anything can really change was devised by Aristotle in his doctrine of "potentiality". When, for instance, a brass square was hammered into a triangle, the brass was said to have been a triangle all the time "potentially" or "in potence". Later on, the word "potentiality" was a godsend for the physicists. For having declared that all energy must be conserved, but having then actually found it disappear, they could still say that it remains there "potentially"; where the concept failed,

there came conveniently the word.

Anyway, after allowing themselves to be subjugated by such explanations for more than two thousand years, the Becoming-ites suddenly took heart again. They rallied for a new battle on a new field, that of the recently triumphant doctrine of evolution. Under such a leader as Bergson, they no longer feared the reproach of advocating miracles. Indeed, they seemed to welcome these on the ancient principle of faith, " I believe it because it is absurd ". Evolution is openly declared to be " creative ". Time is almost exultantly entitled " an inventor ". Without shame, evolution is characterized as the " emergence " of novelties.

But this problem of Becoming is intimately connected (perhaps at bottom identical) with another one better known, that of Cause and Effect. If the plain man encounters any change in his material environment he at once inquires what *caused* it. For him, water becomes hot *because* of the fire below it. When the blow of a hammer drives a nail into a plank, the descent of the hammer is by every unsophisticated person taken to cause the sinking of the nail.

This notion of causality was not only taken over from common sense by physical science, but made the basis of all the chief physical concepts, such as those of " force ", " power ", " action ", " reaction ", " energy ", and so forth. In this way its utility has been immense. And right down to the present day every physicist—however much he may disclaim it theoretically—seems to owe to it in actual practice his chief inspiration to make progress and his principal claim to explain events. Throughout, his molecules, atoms, and smaller particles, even his ether, are essentially engaged in causal operations, in pushing, pulling, and twisting, in stressing and straining.

But besides all this material kind of causation, at least equally familiar to common sense is the mental kind

designated by the word "agency". Every person regards himself and all others as agents. He takes them to be the causes of what he calls their voluntary or purposive actions. For these he holds them responsible. Upon this view is indeed built up the whole fabric of society.

Once more, however, philosophy has stepped in to disturb the peace. To those psychologists who philosophically incline to materialism, any such notion of mental agency has been anathema. And many even of those psychologists who do allow that purposes exist are still chary of admitting them within the pale of science.

Just the opposite direction has been taken by those psychologists whose philosophy was idealistic. Locke —ardently followed long afterwards by Maine de Biran— declared that just this agency is the one kind of causation with which a person can possibly be acquainted. Malebranche about the same time energetically disputed the metaphysical possibility of one material object really moving another one.

Hume, however, tried to prove that experience could not ever have revealed to us any genuine causation either material *or mental*. Convinced by such considerations, scientists like Clifford declared that the supposed material causation entitled "force" is really no more than a way in which sensations may be ordered. Another outstanding man of science, Mach, went so far as to pronounce the concept of force nothing but fetichism. Nor has the contention suffered any abatement—rather the contrary—even among physicists of the present day. A good number, naturally enough, go on using the old dynamic terms of efficient causation, such as "force", without attempting to discuss their legitimacy; they would seem to act so, either by mere habit, or because of not knowing how to do otherwise. But bolder spirits who do discuss the said legitimacy, decide with extreme

emphasis in the negative. Jeans says categorically that

> " the presence of matter does not produce ' force,' which is an illusion."

He derides Newton because he in his first law of motion " blandly invents a new force ". He casts ridicule even upon Faraday and Maxwell because

> " they pictured an electrified particle as an octopus-structure, a small concrete body which threw out a sort of feelers or tentacles, called ' lines of force,' throughout the whole of space. When two electrified particles attracted or repelled one another, it was because their tentacles had somehow taken hold of one another, and pushed or pulled."

On the whole, the achievement of the philosophers about Being, Becoming, and Cause, would appear to be much the same as about Reality and Appearance. They have been eminently successful in revealing vital problems. But they have attained no generally admitted advance towards solving them. Again the question obtrudes itself, What can be said about them by psychology? Not a little, if we may agree with Chapter XVII.

§ 4. *The One and the Many*

Another set of problems has sprung from ruminating over the notions of " unity " and " plurality ".

Common sense indeed once again gets along very comfortably when left to itself. Such words as " one " and " many " are handled by the plain man with all desirable ease and effectiveness. Some even of the lower animals show every sign of coping with numbers up to half a dozen or so. But then arrive the searchers after more recondite wisdom, and they commence by setting up, each in his own way, oneness or unity upon an

extraordinarily high pedestal. Xenophanes (*b.* 570 B.C.) declares that

> " The All is One and the One is God."

So, too, Parmenides—

> " For ever Being stands a Continuous One."

No less impressively, Aristotle declares that

> " The One (τὸ ἕν) is nothing else than ' entity ' itself

But other writers have insisted rather on the character of plurality. They have taken the cosmos to consist of extremely numerous constituents. And these two contending schools have been at war ever since; the one side, as Plotinus, Spinoza, and Schopenhauer, being enthusiastic for the virtues of unity; the other side, as Anaxagoras, Empedocles, the Mechanists, and Leibniz, espousing the cause of plurality.

Nor does the exaltation of unity appear to have been abated by the recognition that it may be of diverse sorts. Gundisalvi writes :

> " One kind of unity is that arising from simplicity of essence, as occurs with God. Of a different kind is unity through conjunction of simple elements, as occurs with the angels or with the soul, each of which is one by conjunction of material and form. Of another kind is unity by continuity, as with a tree or a stone. Of another kind is unity by composition, as when one floor is made of many boards, or one house of many walls. Other things are called one from their aggregation, as a people or a flock, a pile of stones or a heap of wheat. Others are called one from their similarity of relation, as when the pilot of a ship and the ruler of a state are called one through resemblance of office. Other things are called one through some accident, as when different objects of the same quality are said to be one in it, as snow and a swan are one in their whiteness. Other things are said to be one in number, as when divers accidental qualities of the same

> object are called one by number, that is to say, in enumeration ; this is said to be sweet and that to be blue, or this to be long and that broad. Other things are called one by character ; this happens in two ways : either by reason of concomitance, as when intellect and things and words are of one genus ; or by reason of one sacrament, as when spirit and water and blood are called one. Other things are called one through nation or language, as when many men are called one race or one tribe. Other things are called one by custom, but this in two ways ; either according to agreement in virtue and love, as when a multitude of believers were one in heart and soul ; or as when many men participate in the same vice ; thus he who has connection with a harlot is rendered of one body. Thus all things seek for unity, so much so, that even those which are multiple desire to be called one."

But other philosophers, before uttering their final opinion on this interesting character of unity, set themselves to examine first what the word actually means. Here, Aristotle is again to the fore (whilst common sense lags far behind). He finds that a thing may be called " one " on many different grounds. In some cases, he says, the name is only given " according to accident ". His example is " musical Coriscus ", which involves an accident in that Coriscus *might* not have been musical. To illustrate the other general kind of oneness, that " according to essence ", he cites " a bundle held together by a string " ; as a counter-example, he writes :

> " If you were to place sticks touching one another, you would not say that these are one, either one piece of wood, or one body, or anything else that is continuous."

He enters, however, a caveat that oneness is after all a matter of degree :

> " the leg and thigh are more one than the leg and foot together, because it is possible that the motion of the leg and foot be not one."

Then he breaks off in a different direction :

> " A thing is called one . . . in respect of being destitute of a difference. . . . All fluids are styled one . . . because all these are, in reality, water, and air."

But by far the liveliest interest was taken in the endeavour to define and explain unity in terms of *division*. Already Aristotle had declared those things to be called one which

> " are substances . . . and cannot be divided either in time, or place, or definition."

From this he arrives at what he takes to be the very heart of the whole matter :

> " Universally, whatever things do not involve division, so far forth as they have it not, so far they are styled one."

Without for the moment pursuing the history further, we can readily understand how the problem of the One and the Many came to furnish countless generations with exciting matter for debate. Less obvious, however, is the answer to the question : " What good came of it at last ? " About this there will be much more to say later on (Chapter XXXIII).

§ 5. *Form, Idea, Universal*

Alongside of such stupendous—or sometimes perhaps even stupefying—problems as those of Reality, Being, Causation, and Unity, must be ranged also that of " Form ".

Once again, we come upon a labyrinth from which there seems no escape without using the clue supplied by words. Originally, " form " (*μορφή*, *forma*) denoted the manner in which any material or stuff (*ὕλη*, *materia*) is placed together, as distinct from the nature of the material itself. The word is said to come from the Sanskrit,

dharman, holding, position, or order. In this sense it indicates relations in space. The two together, material-as-formed, was called by Aristotle the synolon (*σύνολον*), a word that might well be revived. But at a very early age there occurred a transfer of meaning over from relations of space to those which involved time. In particular, a melody was regarded as musical " form " whilst the tones could be taken to supply the " material ". Not long afterwards, by a further extension of meaning, the " form " included any qualitative relational system whatever; such as a colour scheme. Eventually, it became much employed to indicate social or other psychical systematic relations; this happens when we talk of " forms " of speech, or of education, or of government.

But such a comparatively peaceful, common-sense development of the meaning of form to denote any system of relations abstracted from the material related was rudely disturbed by Cicero, when he identified " form " with the Greek *idea* (*εἶδος καὶ μορφή*). For in this meaning the word got involved in most serious difficulties. As we have seen, it is caught up with Aristotle's theory of potentiality (Chapter III, p. 64). In its sequel with Aquinas the meaning of the word was curiously expanded into " anything whereby primarily anything acts ". For example, he says, when health heals the body, it constitutes the " form " of this.

Even deeper becomes the imbroglio when the term is introduced into the Platonic doctrine of universal ideas. Could all the ancient literature about these " universals " be put into one immense scale-pan, this would scarcely kick the beam, though the other pan were filled with all that the moderns have written about " evolution ".

But that is not nearly the end of the troubles that befell these " forms ". Peirce could cite no less than

forty-three recognized and named varieties.

One of the least extravagant was to mean "appearance". The two Greek words *εἶδος* and *ἰδέα*, coming as they did from *ἰδεῖν*, to look at, suggest the way that a thing looks. And this meaning, too, passed over to the word form. In English, we find as early as 1297, "toward this grisliche fourme mid god hirte him drou".

In modern times, however, the word form seems to have generally passed back to its original plain meaning as a system of relations. Still there have been exceptions to this simple usage of the word; and indeed such as bring psychology into serious trouble (see Chapters XIII and XXIV).

§ 6. *Truth, Goodness, Beauty*

With these three characters, we arrive finally at that awesome province of philosophical endeavour that is concerned with "values". But for want of room, they must here be treated in such a cavalier fashion as can have no excuse save necessity.

With respect to Truth, here as usual the plain man gets along happily enough when left to himself. Certain views—in general, his own—he regards as "true"; about these he "knows". The conflicting views of other persons he takes to be "false" and merely their "opinions".

But once more the philosophers disturb the peace. Brooding perhaps over their almost universal inability to convince one another, they have conceived the plan of discovering some *criterion*, by virtue of which genuine knowledge and mere opinion may be safely distinguished. Or else, renouncing hope of finding such a thing, they have degenerated from metaphysicians into sceptics.

Much the same can be said about Goodness. The plain man, and even the child in his first year of speech,

employs such terms as "good", "bad", "naughty" with all desirable incisiveness. But the philosopher worries himself over the fact that the valuations made by one person are apt to show startling discrepancies from those made by another. Often, too, the inquirer's unhappiness is augmented by the difficulty he finds in making even his own cogitations about goodness square well with the doctrines he has evolved about other matters such as reality.

As for Beauty, even with this the plain man finds himself on excellent terms. At a very early age, the child will with perfect confidence declare that a toy or dress is "pretty". And when in later life his aesthetic valuation of anything is seriously questioned by other people, he still gets away with saying that at any rate *he* likes and admires it.

But here the philosopher who burrows deeper finds fuel for controversy without end. What is the essential form and content of the object appreciated as "pretty"? What is the nature of the experience of "liking"? How is the value of the beautiful related to those of the true and of the good? What is its relation to reality? To biology? To sex? And so on *ad lib.*

Once more, then, we come upon a hornet's nest of problems whose interest is only matched by their difficulty.

§ 7. *Positive Science and Opportunism*

Faced by such dangerous topics, the most drastic policy would be simply to eliminate them; to turn them bag and baggage out of psychology, letting them find refuge, if they can, in philosophy. Science, it can be declared, should confine itself to plain matters of fact; it should concern itself wholly and solely with what is to be observed in actual experience. And in this fashion

arises a purely "empirical" psychology, whose origin used to be credited to Hobbes, but seems more properly assigned to Vives; or still further back, to John of Salisbury; or even to Aristotle himself. Turning from those who are said to have started such a notion to those who are credited with its extreme development, we come in particular upon Brentano.

And even apart from these more fundamental attempts at restriction to experience, the general urge to keep away from philosophical problems has been gaining in force throughout history. Take, for example, the topic of truth and error. Nowadays most psychologists will have nothing to do with it, referring inquirers to logic or what not.

But on a little more reflection, such a course appears to be for psychology almost suicide, or at the least emasculation. For if this science really kept dumb about truth and error, what sort of a figure would it cut when dealing with such essentially psychological topics as education, testimony, or mental tests?

The only possible way out of the dilemma would appear to be a delicately chosen compromise. Within the ordinary range of psychology, at any rate, there is a general consensus of opinion—or anyway, a good working majority—as to what processes of observing and reasoning are legitimate. As for the further step of making these processes produce their credentials, specify their criteria, clear up all dialectical sophistry, *this* is indeed a job from which the psychologist may and must excuse himself.

All this about truth and error may with appropriate modifications be applied to all the other difficult topics that have been brought forward in the present chapter. In all cases, there is a mixture of some problems that seem to be for the present insoluble with others which can and must be at any rate solved provisionally. If the psycho-

logist would escape from ineffective rumination; if he would achieve any kind of sustained progress; then he must turn his research, not so much in the directions that are desirable, as rather in those that are feasible. Frank opportunism!

After all, nothing better than this has even been achieved by his triumphant rival, the physicist. For the latter too found himself quite unable to solve his most fundamental problems. So instead, he just shelved them; adjourned them *sine die*. In this sense he relegated them to "philosophy".

Indeed, this great rule of psychological opportunism has for many centuries been striving to assert itself. Especially at and after the advent of the Renaissance, the very matters which before had supplied the main interest of psychology began to disappear from it. Praising this revolution, Stewart declares that the

> "change from the idle abstractions and subtleties of the dark ages to studies subservient to the culture of the understanding; to the successful exercise of its faculties and powers . . . may be regarded as a palpable and incontrovertible proof of a corresponding progress of reason in this part of the world."

What then, it may be asked, is left to which psychology must hold under all conditions? What is the minimum that it can *not* renounce? The answer to this question has been indicated in a previous chapter. If psychology would perform its mission as an empirical science, it must at least be able to predict the future. And for this purpose, it must find out what occurs and what goes with what. It must determine the existence and the coexistence of mental events. We are back once more at the *irreducible minimum* (Chapter II, p. 39).

Let no one, however, flatter himself that this degree of renunciation is going to be effected easily. With

apologies to Horace—Turn out philosophy with a pitchfork, yet it will ever come running back again. Penetration below appearances down to reality—be it ever so sincerely renounced as unattainable—continues still to be craved for no less imperatively than before. And indeed many of the problems that now seem insoluble may eventually not be so. Even in physics, issues that once were dismissed as hopeless are nowadays beginning to yield; the philosopher's stone itself is no longer considered altogether chimerical. Psychological science must be ready to include in its scope *whatever it can*.

§ 8. *Upshot*

So ends our tale. We have made a swift survey of the endeavours of academic philosophy, a flight which has carried us up into heights and down into depths undreamt of by the crude though confident philosophy of the plain man. The result has been to show, on the one hand, that the topics involved have immense interest for psychology, but on the other hand that they offer problems with discouragingly small prospect of solution. The supply of different theories, and even of supporting arguments, would appear to have been almost exhausted many centuries ago. Psychological discussion is now constantly being obscured and its progress arrested by the introduction of these philosophical issues that seemingly cannot be brought to any decision.

Nevertheless, we have also found that in any effective mental science, these same topics are to a certain extent indispensable. Completely deprived of them, psychology would become ridiculous.

In this quandary the sole resource would appear to be a policy of opportunism. The subject-matter that is paralysing and that which is indispensable can—with sufficient insight and tact—be tolerably well separated

from one another. Indeed, some such division was introduced already by Wolff, when he separated the "rational" from the "empirical" study of the mind. After this fashion, empirical psychology may hope to pick out for itself whatever studies are amenable to its comparatively light methods of attack, leaving the more refractory problems to be reduced, if and when possible, by the heavier guns of philosophy. Nevertheless, be it well understood, this severance of functions is not meant to preclude co-operation. On the contrary, hope is entertained by not a few that the problems of philosophy will be solved when, and only when, this takes scientific psychology as its starting point.

CHAPTER IV

PSYCHOLOGICAL METHODS: PSYCHOLOGY AS IT IS

§ 1. Self-knowledge. § 2. Rumination. "Intuition". § 3 Induction. § 4 Experiment. § 5 Mathematics § 6. Analogy. § 7. Hypothesis. § 8. Analysis and Synthesis § 9. Psychology as it really is § 10. Upshot.

§ 1. *Self-knowledge*

Although the fact is not always realized by the non-expert public, a science usually includes something very important besides its subject-matter; namely, its method or methods of handling this. And here psychology—more perhaps than any other science—finds one of its greatest embarrassments.

First and foremost comes the hotly contested method called that of introspection, in the sense of observing one's own experience. This procedure the plain man employs freely and, it would seem, quite efficiently. All day long he is making statements about himself, his own mental states and activities; therefore he is implying a knowledge of these. He will be prepared to affirm not only that the rose before him is red, but also, and with even firmer conviction, that he himself sees it as red. He will not only assert that all mortals die, but also that he himself is convinced of this fact. He is quite well aware when he does, and when he does not, feel pleased, or want anything. Statements about his own experiences supply the largest part of his daily conversation, from the epistolary gambit "I hope and

trust you are quite well" up to such momentous declarations as "I love you" or "The policy of the Government is such-and-such". Furthermore, the statements derived from self-observation are accepted—and necessarily so—on the most solemn occasions; many a man's life and death have been dependent on his affirmation that some act of his was "intentional" or "unintentional".

But this complacency of plain men was once more rudely disturbed by the ever-prying philosopher. Foremost among these, we are often told, was Kant, who—extending his critical attack from the science of matter to that of mind—declared that a person cannot possibly know his own experiences as they *are*, but only as they *appear*. After him arrived Comte, with his famous pronouncement that the human mind, however well it may know all else, is by invincible necessity debarred from ever knowing itself; the very act of introspection, he says, destroys that which should be introspected. Last of all, there have come down wolf-like on the psychological fold the already mentioned behaviourists. The more extreme of these would deny to man the power of observing his own consciousness *at all*; and on the radical ground that, in truth, no such consciousness is known to exist!

Whether or not we can concede to this modern protest against introspection the merit of being well founded, we certainly must withhold that of being original. Nearly two thousand years ago the same thing was said—with at least as much emphasis and cogency—by Sextus Empiricus. For him, too, it is evidently impossible that the mind should take notice of its own thoughts, feelings, opinions, and emotions.

But hard indeed would seem to be the plight of the psychologist if he really adopted this doctrine, not only in psychologizing, but also in affairs of practical life. When

declaring himself in love, he would have to admit that he only had the appearance of being so. When he gave an order, he would have to concede that he did not really know what he ordered.

However, here, as often elsewhere, psychologists to some extent supplied their own correctives. When some of them put forward an extreme doctrine, others counteract it by going to the other extreme. In the present instance, the assertion that the mind has no cognizance of its own operations has been met by declaring that it cognizes them infallibly. Beneke wrote:

> "In inner perception, we have a presentation which has complete or absolute truth."

Hardly less optimistic is the estimate of introspection that seems to have been held by Plotinus, Augustine, Descartes, even Locke and Tetens.

How serious and even tragic this question of introspective method can become is shown by the following incident. A large modern school of psychology, headed by Titchener, devoted itself above all things to the establishment of a faultless science upon unerring inner observation. And to approach this ideal, use was made of the mental attitude well tried and warranted in the outer observation of physical science; namely, that of steadfast attention. But unfortunately this procedure, so admirable for the observation of physical data, appears to be the worst possible for that of mental activities. The mind, it would seem, is not able to look *fixedly* at its non-sensory experiences, such as thinking and willing. When it tries to do so, it only manages instead to attend to something sensory (sensation, image, and so forth). The substitution resembles that which occurs when one tries to waggle one's ears, and only succeeds in wrinkling one's forehead. Thus the very excellence of the intentions of this school were its undoing. Its ambitious psychology

soon underwent an almost unparalleled collapse. As it rose like a rocket, it fell like the stick.

More moderate psychologists, as Cousin, have adopted an intermediate position. They are convinced that there really does exist some power of knowing one's own experience, whether this be called " introspection " or by any other name used more or less synonymously. But on the other hand, they concede that the exercise of this power may upon occasion lead to grave mistakes. They even claim the possibility of special procedure whereby the fallibility can be very much diminished.

§ 2. *Rumination.* " *Intuition* "

From the preceding method of gaining information about the mind, namely, by means of self-observation, even the most advanced psychology seems directly or indirectly to obtain at any rate its raw material.

Let us then go on to consider what further methods have been used, whereby this material is worked up into psychological science. For some two thousand years or so, the elaborating procedure consisted in what we have above designated as ruminating. The psychologists were philosophers ; as they sat and walked, they thought and talked. They compared their different observations together ; noticed resemblances ; from these derived general ideas; and thence arrived at classifications. Their principal exploit in this line consisted in establishing, as we saw, the general idea of " psychic ", or " spiritual ", or " mental ". Out of these ideas, which came straight from observation and therefore may be taken to have at least a basis in actual fact, they proceeded to construct higher ideas such as that of " consciousness " (in the original sense of the word), or " energy ", which *might* indeed also have a basis in fact, but might instead be quite imaginary.

Having thus enriched and clarified their supply of general ideas, the ruminative psychologists proceeded to combine these into universal propositions. The most fundamental of these were taken to be ultimate and self-evident; as that "nothing can come out of nothing", or "like can only influence like".

Out of such general propositions (used logically as major premises) together with their rather meagre self-observations (used logically as minor premises), they proceeded to derive surprisingly copious and far-reaching conclusions.

To all this ruminative and deductive procedure it is that we owe almost the whole of such psychology as was contributed by the ancient Greek philosophers. To it, no less, we must credit the developments introduced by the thinkers of the Middle Ages. Even the Renaissance, including such scientifically minded writers as Locke, adopted in the main no other procedure. And little else, it would appear, has been the mainstay of some of the most notable psychologists of the present day; such as Brentano, Meinong, and Husserl.

Nor did in ancient times psychology stand alone in this respect of method. Physical science seems to have rested on much the same basis.

So far, the story of psychological method seems plain enough. But here and there we may come upon ways of procedure whose nature and function are less obvious. A notable instance is the often alleged power of "intuition". What this power can and cannot achieve has quite recently become the subject of spirited discussion, particularly with reference to its status or otherwise as a scientific method of investigating personality.

Without attempting here to provide such intuition with any precise formula, we may remark that it may trace back its descent from Plato and Aristotle (see their *θεωρία*). It has played a prominent part in most forms

of mysticism. With such philosophers as Nicolaus of Cusa it appears as "intellectual vision". In its most modest version, it is defined as the direct or immediate grasp of the essence of an object. In more vivid colouring, the intuitionist has been painted as one who withdraws himself into the bottommost depths of himself where—caring little for the outer world—he digs a foundation for knowledge out of his own thinking principle. The following is the story told by Schelling:

> "In all of us dwells a secret, wonderful faculty of looking, under the form of Unchangeableness, at the Eternal."

But different again is the case to which the term intuition is in point of fact most commonly applied. Here it means that which is otherwise designated as "general impression". It does not really denote how a person comes to know anything—only that he does not know how he knows.

§ 3. *Induction*

But with the fall of Scholasticism and the rise of the Renaissance, there came a different spirit over at any rate physical science. Rumination (mystic or otherwise) waned and observation waxed. Instead of chewing and re-chewing the facts at their disposal, scientists bestirred themselves to accumulate more and more of them. And on this basis, deductive logic gave place to inductive. The main current of reasoning process no longer ran from generals to particulars, but rather from particulars to generals.

The inductive procedure was, indeed, no new invention. Every child uses it. For example, one five-year-old on noticing that he, his sister, his father, his mother, and his nurse all had watches, proceeded to exclaim: "Everybody in the world has a watch".

The improvement of method did not come so much from creating the inductive procedure as rather from employing it better and more often. Bacon, to whom the chief credit for the innovation is usually assigned, took this view himself. And although the fundamental basis of induction may not have been certainly established even to this day, yet modern logicians can scarcely be denied the merit of greatly elucidating it. Eminent here is the work of J. S. Mill with his four great methods of scientific inquiry. First comes that of " agreement ", which he instances by the discovery that an alkali combined with oil produced soap. Here numerous mixtures, having the combination of alkali with oil as their sole common feature, are found to agree in having soap as their common product. Hence the said combination and the said product are taken to be cause and effect.

Second and much more potent (especially in co-operation with the first) is the method of " difference ", as when a man's death is attributed to his being shot. In the brief period between his being alive and his being dead, the conditions appear to differ solely in the fact of shooting. This, then, is taken to be the cause (or part cause) of the death.

When neither of the two preceding methods was feasible, use could often be made of that of " residues ". An instance was the discovery of Argon. Observation had shown that the density of nitrogen obtained from the air is uniformly greater than that of nitrogen got from nitrogen compounds. Hence Rayleigh inferred that the air must contain a little of some further and denser gas.

Fourth and last is Mill's method of " concomitant variations ". Here the basic principle is that if two phenomena always vary concurrently, they must somehow be connected causally.

So much for the inductive methods, with which

science was enriched from the Renaissance onwards. By their means, seemingly, it was that physical science, which for a great many centuries had been stagnant or even retrogressive, started at once upon a swift career forwards; and with further lapse of time the pace, far from slackening, has seemed always to grow quicker and quicker. Nor have the votaries of this new method been themselves at all diffident in expressing their superiority to the old-style workers whose " straw-thrashing subtleties ", they said, and " whose methods of investigating nature by discussing the meaning of words and the usage of language and the necessities of thought " had proved to be so " futile and unproductive ".

Whilst, however, such a wonderful revolution went on in respect of the study of the material world, what happened about the study of the mind? According to many writers, a similarly stupendous stride forwards was achieved here also, and as early as the sixteenth century. Thus Stewart extols beyond measure

> " the extraordinary changes which have gradually and insensibly taken place since the publication of Locke's Essay."

But about this optimistic estimate of the method used in psychology by Locke and his followers, there is still room for doubt. Almost the only definite example ever quoted as a success due to the inductive procedure has been the establishment of the " law of association ". And this law, in truth, appears to have been well known already to Aristotle; even to Plato. We shall have much to say about it later on (Chapter XXVIII).

Where, then, lies the rub? It seems that all four methods of inductive inquiry, and especially the potent second one, depend essentially upon the condition that *only a single influence should change at a time*; either this alone has to persist in all the cases at issue, or this alone

has to withdraw. And in the natural course of events such singleness of variation hardly ever occurs. Instead, a great many influences keep coming and going simultaneously.

§ 4. *Experiment*

If such a difficulty baffled the science of mind, how came it to be so brilliantly overcome in that of matter? For answer, history shows that most of the great physical discoveries, and nearly all the more certain ones, have not been due to the inductive method alone, but to this in conjunction with a further method, that of "experiment". Here the scientist no longer contents himself with observing the ordinary course of nature, but instead takes the initiative and shapes that course as he thinks fit; in particular, he aims at arranging the situation so that—as is most needful—only a single influence varies at a time.

Thus when Galileo wanted to refute the Aristotelian doctrine, that bodies fall with a rapidity proportional to their respective weights, he did not diligently observe multitudinous cases of falling, to see what was alike, or what was different in them. He was content with only two cases, provided that only one circumstance varied from one to the other; this variant was weight. To find such cases occurring naturally, he might have hunted all his life. But the devising of such cases intentionally could be done in a moment. As we all know, he ascended a high tower and from its summit—before a great audience—he dropped two cannon-balls. Nothing differed in the two save that one was much heavier than the other. Both were seen and heard to reach the ground simultaneously. And forthwith the Aristotelian doctrine was once and for all time refuted.

The victory thus achieved in the question of falling

weights was soon extended over the entire range of physical science. Everywhere alike, in mechanics, chemistry, physiology, even astronomy, the decisive factor in the development of knowledge has been the introduction of the experimental method.

So much for the science of matter, but what about that of mind? Is not here too the experimental method available? On this question there has at any rate arisen acute difference of opinion. So far as concerns common sense, the answer would appear to be decidedly negative. The plain man appears inclined to suppose that experimental psychology must needs consist in sticking pins into folks' brains. And even by the leading authorities on scientific method, the possibility of experimenting with mind used to be either denied, or at any rate laid under crushing restriction. Jevons, for example, after himself carrying out a careful experimental determination of how many marbles can be clearly seen at the same time, remarked regretfully that this seems to be the sole case where experiments with mind are feasible. Even Fechner himself, despite his own incredibly laborious experimental determination of sensory thresholds, was not much more hopeful. For when Ebbinghaus produced his experimental work on memory, Fechner remarked to him that between the two of them the field for mental experiment had been pretty well exhausted! (This incident was narrated to the present writer by Ebbinghaus himself.) Even as late as 1893 and by a logician so steeped in psychology as Sigwart, we hear that the experimental method "can only have subordinate significance".

Turning from these adverse speculations to the actual facts of the case, we do beyond doubt find that the method has at any rate developed very tardily. There was indeed an experimental determination of mental span—anticipating those of Bonnet, Jevons, and Hamilton by

over a thousand years—already in the Middle Ages; it was reported, and appears to have been executed, by Nemesius. But at the Renaissance nothing more seems to have been undertaken; save in very exceptional cases, as when Locke immersed one hand in hot water, the other in cold, and finally both together in water of neutral temperature.

The first and foremost characteristic and virtue of the experiment lies only, as we have seen, in arranging situations in such a manner that but one condition varies at a time. And why should not such an arrangement be devisable in the case of mental situations? In certain spheres of psychology this may indeed be extremely difficult to secure. But to regard it as rarely possible was, to say the least of it, unduly pessimistic.

Anyway, the time at last arrived when, under the inspiration of Galton and Wundt, psychological experimentation suddenly came into its own. At the present day, it is being executed in hundreds of laboratories by many thousands of researchers over a field that is continually extending its range. Its enthusiasts aspire to cover more or less effectively almost the whole sphere of mind. And even the most moderate authorities can scarcely demur at the saying of Collins and Drever:

> "A psychology without the experimental part is to-day an anachronism."

As an example may be quoted the conundrum of many centuries, as to whether or not the sense of sight derives its spatial character from the sense of touch. What was easier—when once Stratton had thought of it!—than to set these two senses in conflict with one another by means of an optical device, and then to see which, if either, of the two senses would win out (see Chapter XII, p. 202).

§ 5. *Mathematics*

But great as may be the potency of this, or of the preceding methods, there is yet another one so vital that, if lacking it, any study is thought by many authorities not to be scientific in the full sense of the word. This further and crucial method is that of measurement, or rather of mathematics; for this latter is what science really needs.

Among the earliest expressions on this point was the saying of Malebranche, that the comparison of mental states only yielded qualitative, not quantitative, differences. Soon Leibniz followed suit. He declared that mathematical treatment can only be applied to continuous magnitudes, such as time and space, and therefore cannot be brought into the service of psychology, seeing that this possesses no continuity save that of sensation. Wolff, on the other hand, defended and demanded a "psychometry". Plancquet energetically rejected this. Kant, after an original inclination to concede the applicability of mathematics to psychology, later in life made the most absolute and celebrated objection of all. Psychology, he said, is for ever debarred from being treated as possessing mathematical magnitudes; his ground, akin to that of Leibniz, was that, whereas the phenomena of matter possesses two variables, space and time, those of mind have only the single one, time. Fries and many others, following up this condemnation, disposed of all measurement in psychology by the summary declaration that this science has nothing with which to measure.

But the path of science is paved with achievements of the allegedly unachievable. And in point of fact, mathematical treatment is perhaps just the region where psychology had made its steadiest and most surprising advances.

Already Herbart, Kant's immediate successor at the University of Königsberg, had invented or inspired

a very elaborate mathematical psychology. He only managed this, however, by introducing his hypothetical mechanics of ideas. And unfortunately he was unable to bring these hypothetical magnitudes into any connection with actual observation, experimental or otherwise. In consequence they failed at that time to advance science in the smallest degree (though possibly they have still a future before them).

But then came the stupendous mathematical adventure of Fechner, which was overtly based on determining the "threshold" where a difference of sensation is just noticeable, but which really aimed at nothing less than establishing the fundamental quantitative relation between mind and body. In so far as this metaphysical goal is concerned, indeed, he may be said to have definitely failed. And even as regards his empirical curves of correspondence between mental sensation and physical stimulus, his conclusions have not stood the strain of later criticism. Nevertheless, as a contribution to the technique of determining "thresholds" (a technique whose wide serviceability does not even yet seem to be fully appreciated), and hence as a step in the application of mathematics to psychology, this work of Fechner may aspire to be regarded as a historical landmark.

Growing out of the preceding movement, but on a vastly more extensive scale, has been the all-pervasive introduction of statistical tables and graphs, with all their "averages", "dispersions", "frequency distributions", "correlation coefficients", and so on. With some nations, notably those speaking English, the statistical yield has been immense.

But the question whether mathematics can possibly be applied to psychology is not the same as the question whether it does much good there. Many authors appear to treat it on an insecure principle; that is,

they seem to hope that exactness of mathematical handling will somehow remedy worthlessness of the data handled.

Accordingly there is but small ground for surprise on finding that in some countries the pendulum has swung in the opposite direction. Psychological statistics have been greatly dispraised, especially by those writers who did not themselves know how to handle them. In their place they speak emphatically for favour of the method of " intuition ", taking this, apparently, to mean the forming of opinions without having any definite grounds for so doing. And indeed such preference would meet with not a little sympathy from the man in the street.

But another group of psychologists again defend moderation. If anyone uses mathematical procedures badly, they say the remedy is to use them well. Intuition is in the main a method of making psychological observations. Mathematics is one of handling them when made. To put up the one as the rival of the other is like racing the right leg against the left.

§ 6. *Analogy*

Let us turn to several further methods which may be seen to have a common fundamental feature; that of inferring by way of analogy. The gist of this kind of argument is that, because two things are alike in some respects, they are assumed to be so in others.

The most indisputable and indispensable use of the assumption is when it serves to interpret the behaviour of our fellows by analogy with our own. We see a person smile or frown and—with some but not excessive risk—we take him to be pleased or displeased much as we should be ourselves when smiling or frowning. And together with such actual behaviour of the persons may here be

included their material products, as pictures, engines, furniture, and buildings. These, too, we interpret, though more precariously, by analogy with our own handiwork. For example, we know that nowadays the pyramids could only be built by clever engineers. We infer that engineering ability must have been possessed by the ancient builders also.

Now, this analogical procedure seems to attain a large degree of success. All of us are in the habit of divining the minds of our associates from their actions, their facial expressions, their tones of voice, the things they make, and even the clothes they wear; and this source of information starts at a very early age. But although such a procedure may well suffice for the needs of ordinary life, grave doubts may be felt as to its adequacy for science.

Moreover, such transfer by analogy can scarcely fail to become less reliable when it passes over to widely different subjects and situations; from adults to children; from sophisticated people to primitive ones; from the opulent classes to the poverty-stricken. How shall we confidently assume that the men who drew reindeer on rocks a hundred thousand years ago had the same mentality as have the children, not to mention the adults, who make similar drawings nowadays?

The case must be more dubious than ever when we come down to animal psychology. With apes, dogs, rats, birds, and so forth, the situation may perhaps still be not unpromising. But who shall step in and deal in this way with the behaviour, say, of a jelly-fish?

Since thus at bottom all our notions of the mental experiences of the animals are only conceived by fallible analogy with human consciousness, surely those psychologists would seem at least to transcend common sense who inversely claim to interpret our human conscious life by reference to that of the lower animals.

And yet just this is the cardinal procedure of one of the most active group of psychologists at the present day, that of the "behaviourists", "reflexologists", and many other "objectivists".

The reason for so doing would seem to be that, as a set-off against this grave disadvantage of animal psychology, it has many and important advantages. To begin with, the mental life of the animals would seem to be much simpler. The monkey or the rat appear to have in a comparatively pure state the perceptions, feelings, and strivings which in man are not only complicated by more advanced development, but also overlaid by far more education and tradition. Moreover, many animals have much briefer lives than man, a fact which greatly facilitates the investigation of heredity. Again, the animals are amenable to more rigorous experimental handling. In researches on learning, their lives can be ordered hour by hour and day by day with a regularity and rigour that no free human beings would tolerate. Again, they can be submitted to painful stimuli, or brought into crucial sexual situations, with a license that neither public opinion nor even the law itself would ever permit to be applied to humanity. They may even be subjected to drastic surgical operations, by which the connection between mind and body has by far its best chance of disclosure.

Here again, then, the two methods of study are really by no means necessarily opponents, or even rivals; they should rather be cordial allies.

§ 7. *Hypothesis*

Another procedure used in building up psychological science, but subject to considerable controversy—and therefore needing at least a glance from us here—is the introduction of hypothesis. This has been defined as

the explaining of things that have been observed by other things that have not yet been proved, or even never can be so.

At first sight such inventions might seem to be superfluous. And in physical science they are well known to have been expressly repudiated by Newton: *hypotheses non fingo.*

But the renunciation would appear to have never been really effected even by Newton himself. All the great physical concepts, such as those of energy, mass, force, molecules, atoms, electrons, waves, and so forth, are essentially hypothetical. Energy, for instance, can never possibly be seen, heard, felt, or otherwise actually observed. Nor can it even be logically deduced from any actual observation. But if once its existence be hypothetically assumed, then we can not only deduce its consequences, but also check up these with the facts that do come under observation. If the two agree, the facts become, as it is said, "intelligible"; the hypothesis may conveniently be allowed to stand—until further observation *fails* to agree with it.

In the case of psychology, however, the protest against any hypothesis has been still more vigorous. The science of the mind, it has been urged, is essentially that which deals with actual experience. Therefore to saddle it with what has not and cannot be experienced is an absurd contradiction.

But the actual result of this view has not been encouraging. The chief ensuing psychology—that of Brentano—has by almost universal judgment turned out to be extraordinarily inadequate. And even so far as it did go, the elimination of hypothesis was not effected thoroughly. The decision seems unescapable that to ban hypothesis altogether is but a counsel of perfection. All that can be done is to note when we do admit them, and then to guard against their misuse.

§ 8. *Analysis and Synthesis*

We arrive finally at our last problem of psychological method, and the one which at the present moment seems to be exciting the most heated of all the battles between schools. The bone of contention is as to whether the psychologist can rightly and profitably cut up mental experiences or capacities into constituent parts, elements, or other constituents. Typical of the answers in the affirmative is the following passage from James Mill:

> "Inquiries into the human mind have for their main and ultimate object, the exposition of its more complex phenomena. It is necessary, however, that the simple should be premised; because they are the elements of which the complex are formed; and because a distinct knowledge of the elements is indispensable to an accurate conception of that which is compounded of them. The feelings which we have through the external senses are the most simple, at least the most familiar, of the mental phenomena. Hence the propriety of commencing with this class of our feelings."

But against such an analytical procedure there would appear to be a world-wide wave of indignation. Thus scorn is poured by Stern upon that "traditional" scientific method which would "analyse an individual into his mental contents, acts, and faculties, into his social and cultural single performances". We hear that by so doing we neglect the far more important qualities and properties of more complex mental entities. We are told above all that "the mind thus fixed on the elements becomes blind for the Individual Whole". The results of such a dismemberment are likened to mere "findings of *post-mortem* dissection". Analysis of this sort, it is said, is disastrously holding up the whole of individual psychology. Such objectors accordingly insist on scrapping all the old-time procedure and so at last, they say, getting at the "whole" personality.

This rejection of analysis into parts, as being destructive of the whole, has been uttered with greatest emphasis and generality by certain advocates of the doctrine of "Gestalt" (see Chapter XXIV). But it has also been supported by many who are in other respects much opposed to this doctrine and who in fact look on this shift of procedure from parts back to wholes as its single good contribution to psychology (e.g. Petermann).

Now, in one respect at any rate, the importance of this regard for wholes has certainly been exaggerated; namely, its claim to being original. For if there is any point of psychological method that has been more often considered than any other since the dawn of history, it is just this one.

What thrust could be keener than that which had already been made by Hierocles, when he likened the dissecting philosopher to a man who presented a brick as a specimen of his house? Or on turning to modern times, what comment could be more scathing than that of Thompson?—

> "A habit of too minute analysis impairs the strength and vigour of the intellect, and generally terminates unfavourably for both an author's reputation and usefulness."

Again, what censure could be more pregnant than that of Lewes?—

> "The mind is not made of separable pieces. . . . Each piece has significance only in its relation to the others. . . . Nor can Experience be likened to any complex of parts put together; it is a living, developing, manifold unity."
>
> "The organism, though differentiated into organs, always is a total which acts through its parts; each organ derives its significance from its connections with the others; none has a function irrespective of the rest. And so of mind."

As an example of still later writing in the same direction, take that of Ward. To proclaim that mental

life must be studied, not in fragments, but as a whole, was for him nothing less than his evangel. Some tendency in the same direction may be found even with Stratton in 1909.

> "Is the nature of a mental compound accurately seized, after all, when we have told off its constituents, even in their right proportion? . . . Nothing, it seems to me, could well be farther from the truth." He requires that "our idea of analysis be revised to include an attention to the architectural features."

But in order to get a just notion of all this hostility to analysis as a psychological method, it seems desirable to know a little better what it really means. For the analysis can be of several different kinds, some of which may indeed be fallacious whereas others are blameless enough.

Take, for instance, a musical chord. One way to analyse this would be to try the effect of each component tone sounded separately. This is sometimes called "real" analysis, and its liability to falsify the components is well known. Another way would be to sound all the tones together and "attend" to each separately. Here again the proneness to falsification is familiar; at any rate, to all trained psychologists. But there remains yet a third way. Keeping the attention distributed over the whole chord in any prescribed manner, the listener can still distinguish various "elements", "architectural features", or other aspects —and can think of or refer to any of them apart. This, apparently, is what Fröbes meant when he talked of his elements being "won by means of abstraction". It is also probably much the same as what Lewes called decomposing "ideally". Most precise would be to call it analysis by "intention".

And if the analysis is only of this "abstractive", "ideal" kind, then the comparison to a *post-mortem* or

"intentional" dissection at once loses all semblance of plausibility. The fact of breaking up the mind even into the smallest pieces or finest elements does not in the least preclude eventually putting it together again. Thus Lewes himself writes as follows:

> "When once we have made clear to ourselves the nature of the aid derived from analysis, we may employ the artifice in confidence. Ideally we decompose the organism into its organs, the mind into its functions and faculties; and these again we decompose into their components: physical, physiological, psychological. We study the stimuli, the mechanism, and the experience."

But then he goes on as follows:

> "Even in physical research the analysis which decomposes a total into several components must always be followed by a synthesis which reconstructs the whole, and thus reuniting what provisionally was separated, views the parts in the light reflected from the whole."

However, what seems to be most of all urged by many critics is not so much that wholes alone must be studied, but rather that these must at least be studied *first*. The claim of the wholes is thus not for exclusiveness, but only for priority.

But here again is a question far from novel. Did not already Aristotle preface his work by saying:

> "The question arises whether we should begin by investigating the whole soul or should start rather with the parts."

The latter alternative, it might seem, is nowadays preferred by the eminent investigator of the human will, Ach, when he describes his procedure as follows:

> "We cannot straightaway make statements about the whole and its meaningful connection. Instead, here first the bricks must be brought to build in modest, hard and heavy labour. This is done in order that, in the end,

> the entire edifice should make its appearance as a unitary and closed whole."

In the present volume, however, we shall start *neither* from the whole nor from elements, but from something that is manifestly intermediate. And we claim that really this is done by everyone.

Suppose a person to be shown a picture. He does not begin by studying his whole entire experience as it is at that moment. Nor does he even examine in its entirety his whole vision. He usually takes but a vague and fleeting note even of the whole picture. But as little, on the other hand, does he begin with scrutinizing each spot of paint separately. He steers, instead, a middle course. He concentrates on some conspicuous feature of moderate size; such as a face, or a ship. He then turns to other such features in succession. At some time, probably, he descends to the minutest details, even the brushwork. But in the end—and all the better for his previous analytical procedure—he will work up to the whole as a whole. Much the same is done even by the physicist. He does not commence operations either on all the matter within his reach, or on any single molecule. Instead he picks out different pieces of it conveniently large to handle. These he on the one hand breaks down into electrons, and on the other hand puts together into larger and larger aggregates, up ideally to the whole cosmos. And all this is just what psychology, too, really does, and apparently must do. It begins with such convenient portions of experience as a sensory percept or an emotion—there is an unlimited choice—and from these works *both downwards and upwards*.

Incidentally, it may be noticed that this description of the procedure in psychology would seem to hold for the development of knowledge in general. What has just been said about a person looking at a face in a picture

could with but little change be applied to an infant's reaction to a bright light in a room. On all this question of analysis see also Chapter XXIV.

So ends our brief account of the diverse methods employed in psychology. Perforce, we have confined ourselves to those of widest generality. There are numerous other methods that have more specific applications. One outstanding example is that method commonly known as " psychoanalysis ", closely allied to which are the " psychological analysis " of Janet and the " deep analysis " of William Brown.

§ 9. *Psychology as it really is*

We have been considering how psychology ought to work. Let us now see at what it is working.

Adequate information on this point could only be obtained by a comprehensive and intensive research into current psychological literature. But some points of interest can be elicited even by a very brief glance at such an up-to-date journal as *Psychological Abstracts*, which is devoted to recording " the world's literature in psychology and closely related subjects ".

We find that here the αἴσθησις of Aristotle reappears little changed in a large section on " Sensation and Perception ". His ὄρεξις and κίνησις become now—with a certain amount of re-shuffling—respective sections on " Feeling and Emotion ", and on " Motor Phenomena and Action ". Worse has fared the Aristotelian νοῦς. For this now is only handled by a diminutive section on " Attention, Memory, and Thought ". Altogether these persisting Aristotelian processes or faculties occupy only some 24 per cent of the whole.

As for the remaining 76 per cent, however, the great bulk of this too deals with the same processes and faculties. It only differs in that it does not regard them

in general, but as they occur under various special conditions. Of these the most important are childhood (8 per cent), education (10 per cent), testing (4 per cent), abnormality (20 per cent), and specific function (23 per cent).

The balance is made up of about 6 per cent on "Plant and Animal Behaviour", 3 per cent on the "Nervous System", and 2 per cent on "Biometry and Statistics". All these figures alter considerably from year to year. But there is no apparent change in the general result; this is to the effect that now, as with Aristotle (Chapter I), the subject-matter of psychology consists almost wholly in sense-perception, "orexis", and, though in much smaller degree, intellect or thought.

§ 10. *Upshot*

In the three preceding chapters we have reviewed the endeavours made—at any rate since the time of Aristotle—to develop the common-sense information about the mind into a general science.

We found that from the very beginning down to this day the dominant topics have been sense-perception, intellect, feeling, and volition.

But within this general framework of psychology there have been vital changes of scope. On the one hand, a great reduction has been effected by handing over its most baffling problems to philosophy, and by making a less reckless appeal for aid to physiology.

On the other hand, the science has been swollen by many further methods of procedure. To those of introspection and analogy, which were already at the disposal of common sense, the earlier investigators added their ruminative "intuitions", whilst modern times have made the further contributions of induction, experiment, and mathematics.

We will now turn from the subject-matter and from the method to the principal results. But naturally enough—if on no other ground, at any rate on that of limited space—we will confine ourselves to the case of normal man, especially adult.

PART B

WHAT THE PSYCHE CAN DO

CHAPTER V

CLASSICAL INTELLECT

§ 1. The World and its Contradictions. § 2. Partition of the Soul. § 3. Faculty of the Intellect. § 4. The Changing and the Changeless. § 5. The Particular and the Universal. § 6. The Relative and the Absolute. § 7. Deification of the Intellect. § 8. Partition of the Intellect. § 9. Decline and Fall § 10 Upshot.

§ 1. *The World and its Contradictions*

So now we come down to brass tacks. From what psychology is seeking and how it is doing so, we go on to what it has found. And of its two great scientific domains, what exists and what coexists, we naturally begin with the former. This may be otherwise designated as the mental structure or *constitution*.

But in order to appreciate the course of events, we must glance at the situation from which it had its origin. The earliest problems appear to have been not about the psyche, but about the universe.

The progress of mankind, their defence against and mastery over the rude forces of their environment, had been in large measure the effect of their strong urge to obtain information. But this craving is insatiable. Gratification only offers to it new fields to be satisfied. Man had begun with inquiries which referred to his immediately urgent needs, such as safety, food, and propagation. But when once these had become sufficiently secure, his questions inevitably enlarged their scope. As we saw, he began to ruminate on dreams, apparitions,

life, and souls. But at last certain leading spirits in the foremost races ventured to raise their eyes and ask, What is the constitution, the unity, and the significance of the whole cosmos?

These, however, showed themselves to be problems of very different order from any encountered previously. The young schools of philosophy, as it was named, soon found themselves floundering in the quicksands of illusion and fallacy. Explanations of the world somehow or other always terminated in self-contradictions, as the devil's money ends by changing into withered leaves.

In disgust, their efforts began to degenerate towards scepticism. Sayings gained credence like the following of Gorgias:

> "Nothing exists. And did it exist, it could not be known. And were anything known, it could not be spoken of."

But herewith, the violence of the crisis had hastened its own relief. For now the quest had shifted to a different and more accessible ground; it had been diverted from the material to the tool. In the first place, the problem of existence was supplanted by that of truth and error; the philosophers postponed their inquiries about the world itself postulated as known, and began to ask instead how the psyche was able to acquire knowledge of it. And then, in the second place, the search could not but lapse into psychology; to ask about the source of knowing must needs be to inquire into the nature of the psyche, since this by very definition includes that which knows.

§ 2. *Partition of the Soul*

But this dawning science of the psyche or mind, as must needs happen (see Chapter IV), forthwith proceeded to analyse it into its constituent parts. And the first great achievement in this direction — dominating all

early psychological literature, and, if less explicit, still extremely potent to this day—has been what we may broadly call the doctrine of " faculties ".

Already Plato wrote what has been translated as follows :

> " This is truly hard [to decide] whether we perform our separate acts by one and the same power, or whether, as they are three, we perform one by one, and another by another ; that is, learn by one, get angry by another, and by a third covet the pleasures of nutrition and propagation, and others akin to these ; or whether, when we devote ourselves to them, we act on each with the whole soul ; these matters are difficult adequately to determine."

About this remarkable passage, we may specially note that the word " power " is really the product of the translator's imagination. Another rendering (Lindsay) substituted " principle ". Another (Jowett), " element ". And yet another (Shorley), " thing ". What Plato himself wrote was only " one and the same ", warily leaving us to choose for ourselves. One and the same *What*?

Other ancient writings, however, have introduced a great variety of terms to indicate this or similar mental partition. Earliest would seem to have been the " parts " (*μέρη*) discussed by Plato and Aristotle, as also the powers (*δυνάμεις*) which frequently occur in the writings of both. Cognate use was also made of " forms " (*εἴδη*) and " principles " (*ἀρχαί*). In Latin, the most usual translation of the *δυνάμεις* was " *potentiae* ". But from time to time, various other terms were introduced. Some of the Schoolmen, especially the Arabians, preferred to write of the psyche's different " *virtutes* ", of its " *vires* ", or of its " *aptitudines* ". Not until the Renaissance does the word " *potentiae* " seem to have dropped out of custom. At this period the terms previously used gave place to more or less inexact equivalents in the modern languages : we now encounter " capacities "

(*capacités, capacitates*), "abilities", "*Vermögen*", and, above all, "*faculties*" (*facultés*).

Possibly each of these terms has had its own particular shade of meaning. But the distinctions seem to have been vague and shifting. The general intention behind all of them is to represent the countless transient mental experiences by a small number of relatively permanent—particularly innate—different principles. The multitudinous actual events are thus governed by very few "potential" ones. In this sense, the pattern of the mental structure has been usefully summed up as "oligarchic".

A similar view seems to have prevailed among the Eastern philosophers, as may be seen from the following forcible expression of it:

> "As in ordinary life virile power and so on exists potentially only in young children, and being then looked upon as non-existent, becomes manifest at the time of puberty; so too the connection of the psyche with the Intellect (Buddhi) exists potentially merely during deep sleep and again becomes manifest at the time of waking."

Such underlying potentialities have in modern times become specially connected with the term "faculties". This latter word accordingly will be most employed to denote these potentialities in the present volume. But the reader must be cautioned that this usage of words is more or less arbitrary. Almost any of the other terms might have been adopted instead. Indeed, we may ourselves occasionally have recourse to some of them, especially "power". For the history and special scope of the term faculty see Chapter XI, p. 184.

§ 3. *Faculty of the Intellect*

Now, of Plato's three powers or faculties, the one that interests us for the present is that by which the soul

" learns " (*μανθάνει*). This is the one which comes nearest to what has been generally translated as intellect (*νοῦς*). And here it is that we find in our hands the great ancient psychological remedy proposed for the aforesaid philosophical scepticism. Our senses, indeed, are admitted to be untrustworthy. But the Intellect is infallible.

These two great powers, it was believed, are not only different, but in mortal antagonism. The soul so to speak stands between them, as the Magian between the wicked Ahriman and the good Ormuzd. It is, on the one hand, ever being tempted by its Sense into delusion ; but, on the other hand, it is receiving from the Intellect the counsels of truth.

This dualistic doctrine arose on both sides of the earth from the philosophers—common sense had nothing to do with it—and consequently it was everywhere interwoven with the riddles discovered or invented by philosophy. In the East the Vedantists declared that the " Manas " (senses) produce only the " Maya " or illusory semblance of a material world. But they depict " Buddhi " (the intellect), in the school of Râmânuga, as the chief attribute of Brahma (God), and in the school of Sankya as no other than Brahma himself.

In the West, passing over Pythagoras and Archytas, who also seem to have assigned to the psyche a number of different powers, but about whom our information is meagre, we come to the philosophy of Parmenides, which represents all apparent change and diversity as mere illusion, the Reality being changeless, timeless, and one. Here again, the illusion is ascribed to Sense; the reality is taken to be revealed by pure Intellect.

Curiously enough, the duality was also maintained—although, indeed, less sharply cleft—by the school of Heraclitus also, notwithstanding that this philosopher, in polar contradiction to Parmenides, declared Reality to

consist throughout in change, all seeming permanence being illusive. For he, too, depreciates sensory as compared with intellectual knowledge:

> "The eyes and ears are bad witnesses," he says, "when they are at the service of minds that lack reason."

And he emphatically asserts that the cosmos, in all its perpetual movement, its "flow upwards and downwards", is still unceasingly directed by the Intellectual Law (λόγος), wherein alone man is able to find a haven from error.

Even Democritus, despite his materialism, seems to have accepted the same cognitive duality. And in the teaching of Anaxagoras, we learn that the source of all movement, itself unmoved, free, omnipresent, all-organizing, most fine and pure, is once more the Intellect.

All such scattered sayings, lofty enough, but lacking in system and even in consistency—moreover for the most part only handed down by untrustworthy tradition—at last found their most beautiful expression in the writings of Plato. Everyone is acquainted with his allegory, that likens the world of sense to a dark cave, within which we sit with chains on our legs and on our necks, while our heads are turned away from the bright region of the intellect, so that we pass our lives seeing no reality, but only shadows.

Not before Aristotle, however, is this duality reduced to plain undramatic prose and developed systematically in detail. According to him, as we have already seen, the psyche possesses five different powers (Chapter I). And the crowning one, that which distinguishes man, is once more the Intellect.

Among the innumerable further authors who have contrasted intellect with sense may be specially cited Descartes and Spinoza.

§ 4. *The Changing and the Changeless*

Now, upon what grounds was the intellectual power taken to be so immensely superior to that of the senses?

First and foremost, the latter suffer from extreme changeability. The very same object will at one moment look blue; at another, green; and at yet another, black. As great or greater variations occur for different individuals; the same real wind may blow warm to some whilst reversely cold to others. Stranger still is the fact that the evidence of one sense may contradict that of another, as occurs when a stick dipped into water seems to the eye crooked but to the touch straight. Most disturbing of all is that dreams, hallucinations, and so forth produce sensory perceptions when no real object exists at all! From all such shifting and even contradictory information, how can there ever be learnt the real nature of any object perceived?

For the object of the intellect, on the other hand, has been claimed the virtue of remaining unchanged and unchangeable. This had already been declared by Parmenides, and even by Heraclitus. Much more definite, however, was the subsequent teaching of Plato. Seeking to endow knowledge with a foundation more stable than the shifting sands of sensory perception, he found as most fitting for this purpose the "ideas" which "can be apprehended by the intellect alone", and are changelessly "ever existent", thereby utterly contrasting with what

> "is perceptible by the senses, can be engendered, is ever in motion, coming into being in a certain place and then again passing into dissolution."

Those "ideas", naturally enough, were caught up by the philosophers in their other ruminations: those about reality and appearance, being and becoming, the

one and the many. "Real being", Plato declared, "has for its form sameness." Hence easily followed his fundamental doctrine that ideas, being characterized by enduring sameness, constitute ultimate reality.

§ 5. *The Particular and the Universal*

In another respect, too, the nature of ideas became entangled in the philosophical problem. This was about the mysterious characters of unity and plurality (see Chapter III). One single abstract idea applies to an indefinitely large number of actual objects. Accordingly such an idea was called a "universal". This was defined, in agreement with its verbal structure, as being

> "that which extends to several things, although it is itself one."

Arguing about this supplied the most learned authorities with occupation throughout the Middle Ages.

There has been, however, a second kind of universality credited to the intellect. In addition to the ideas that emanate from the standpoint of Plato, there must also be considered the universal *propositions* which derive, rather, from the work of Aristotle. In the Greek language, these two were very distinct. The Platonic ideas were characterized, as we have seen, by identity (see Chapter III, § 3). But Aristotle's propositions, by entirety. The word which he used (*καθόλου*) is cognate to "whole" and is parent of the English "catholic", which has established itself to denote a religion that claims to be universal. It means that what is asserted applies throughout the whole cosmos. Such a general proposition—for instance, that two and two make four—holds good, Aristotle declares,

> "through itself . . . on account of itself . . . to the extent of itself."

§ 6. *The Relative and the Absolute*

Besides the virtue of having constant and universal objects, the Intellect was taken to possess yet another superiority over mere sensory perception. The latter seems to be not solely dependent on the object which stimulates the sense organ but also (in some unknown degree) on the nature of this very organ. Hence any knowledge of the object as it is in itself must be impossible. And this conclusion, it may be mentioned, nowadays finds more support than ever. The most modern research seems to show that sensation has astonishingly little dependence on the objective stimulus, but instead almost complete dependence on the sensory fibres stimulated (cf. the doctrine of the "specific energy" of the nerves, and the subsequent amendments to this doctrine).

The intellect, on the other hand, is believed by many authorities to get at and deal with the external objects themselves. It does not, like Sense, transform these, but, like pure glass, lets them shine through undisfigured. After this fashion, the knowledge which it affords is no longer merely relative to the knower, but instead can claim the title of Absolute.

§ 7. *Deification of the Intellect*

In one way or another, then, the intellect, unlike sense, transcends experience; it stretches throughout the spatial and temporal infinities. We humans appear to know, for instance, that every change has a cause, not only here, but no less so in Sirius, despite the intervening fifty billions of miles. And who doubts that this fact held equally good before ever the earth began to form its first crust, and will do so long after the solar system is shattered into electrons again? Similarly, we are

confident that at the most remote epochs, just as at present, things equal to the same thing must also be equal to one another, and that the time once past has never returned and never will do so. This awareness of universal truth is moreover not confined to such distant excursions. It pervades all deduction whatever, as well as being the sole ground for all induction. It forms, so to speak, the mortar that binds together not only the loftiest but also the homeliest argument.

Based upon such claims as these, the supremacy of the intellect received full acknowledgment from the Neo-Platonists, the Eclectics, and the Fathers of the Church. It became a cardinal doctrine among all sections of Neo-Aristotelianism, whether Christian, Mohammedan, or Jewish. It was admitted even by the sharply critical William of Occam.

But after this fashion the intellect seemed at last too wonderful to be a human power at all. The doctrine arose that man could not have acquired such cosmic knowledge by the bare force of his own mind, but only by entering temporarily into communion with that of the Supreme Being. In this way, however, certain of the Arabian Schoolmen (Averroists) came into danger of overshooting their mark. Their placing of the intellect upon such a pinnacle had been incited by a desire to prove that the human soul is immortal. But in the end they had put it so high that it was no longer human at all, and so the proof of immortality was lost again. Hence this doctrine called down the severe denunciation of Aquinas.

The subsequent revolution of thought at the Renaissance brought the intellectual power, on the whole, down to a much lower status. But here and there the tendency to its deification still lingered (Bossuet, Fénelon, Malebranche). In the system of Spinoza the dignity of the intellect is one of the corner-stones. Much the same

may be said of Wolff, of the Scotch school, and of the French "spiritualists". Even in the Kantian philosophy, despite its crusade against the pretensions of dialectic reasoning, a dominant part is played once more by the intellect, and the Post-Kantians, as well as Rosmini and Vico, lifted it almost as high as the Averroists themselves had done. At the present day the views of Aquinas are closely followed by Maher, and still more closely by Cardinal Mercier.

§ 8. *Partition of the Intellect*

After all this elevation of the Intellect to a place so sublime and unique, we may be a little disappointed to find it after all depicted as being not one thing but two, or even more. However, if in this guise less exalted, it remains for common sense no less bewildering.

Some such disintegration was already initiated by Plato himself. On the one hand he posited a superior or "pure" intellect (*νόησις*) which acts in a direct manner. To a different and lower level he assigned another one (*διάνοια*) which only acts indirectly by way of reasoning and which admits such foreign elements as sensory perception and unproven hypothesis. Of this adulterated constitution the chief example is geometry.

Entirely different is the duality introduced by Aristotle between the "passive" and the "creative" intellects. The former can "become all things"; but the latter generates all. The former only functions upon occasions; but the latter never ceases to think (within us), although we may not afterwards retain any remembrances of the fact. The former perishes with our body, but the latter is that part (of us) which is immortal. The doctrine is certainly intriguing, and many writers have claimed to understand it.

However, a great change was introduced by Alexander

of Aphrodisias, who in the third century A.D. added to the creative and the passive intellects a third kind, which consists in a " habit " attained by means of the other two.

Not to be outdone, Alkindi six hundred years later brought forward yet another one, and so brought the total up to four.

But subsequent authorities were generally content with two again, these presenting some resemblance either to the teaching of Aristotle or more often to that of Plato. The Schoolmen, for instance, distinguished the *intellectus* or intuitive kind of intellect, from the *ratio* or discursive kind. In the English language, the bisection has frequently been into " understanding " and " reason ". But what these terms are intended to mean seems to change almost every time they are employed.

Among other very notable bisections has been that of Spinoza into the higher knowledge which

> " proceeds from an adequate idea of the absolute essence of certain attributes of God to the adequate knowledge of the essences of things,"

and the lower knowledge which is only due to

> " notions common to all men, and adequate ideas of the properties of things."

Even more famous has been the divorce made by Kant of the perceptually based " Verstand " from the " Vernunft " which needed no such perceptual basis. So far he really follows Plato. But he does perhaps become original in making the Verstand consist in the power to conceive and to judge. And he decidedly takes a line of his own, in making the Vernunft not only be the unconditioned power of principles, but also have the curiously combined offices of drawing conclusions and of generating fallacies.

Among subsequent writers sharply opposing this partition of Kant, but advocating one of their own, may

be mentioned Fries with his supreme principle of "faith" and Gioberti with his "super-rational" thought.

These attempts to break up the intellect into two or more different faculties bring us back to the problem which Plato had declared to be "so hard to decide". When is such a division justifiable? What are the general conditions which prescribe how much should or should not be included in a single faculty? This vital question has not often been definitely answered. Most precise would seem to have been Aquinas, who said that the respective senses belong to different faculties because "by their very nature" they are directed to such diverse qualities as colour, sound, and the like. On the other hand, there are not different faculties for dealing with, say, a black man and a white one, because it is only "accidental" to a man to be black or white. But to understand this distinction may need some initiation into Aristotelian metaphysics. And it may not be found very satisfactory even then.

§ 9. *Decline and Fall*

Beyond cavil, then, this faculty of intellect has had a glorious history. On the conception of it has been lavished an almost incredible imaginativeness and an almost idolatrous enthusiasm. Throughout all previous ages this faculty has played a dominant part, not only in psychological literature, but in most world-views of any sort, philosophical, religious, social, and even physical.

But to-day what a fall is there! None but a faithful few are left to do it reverence. As we have already seen, the general interest of psychologists in it has dwindled away to some exiguous remarks on conception, abstraction, and generalization. As for the plain man, by him the glorious changelessness of ideas has been trifled down

to such aphorisms as that "a man's a man for a' that", or indeed "a spade is a spade".

§ 10. *Upshot*

The present chapter has described the first great attempt to found a scientific psychology. The endeavour has taken the form of deriving the innumerable mental activities of the psyche from a comparatively very small number of potentialities, properties, or otherwise conceived "faculties". Thus the constitution of the psyche is taken to be "oligarchic". Of its separate faculties, we have particularly considered that of "intellect".

Our account of this shows it to have undergone extraordinary vicissitudes. After dominating psychology for wellnigh two thousand years, and after being raised to such a pinnacle as to be taken for God Himself, it has nowadays for the most part shrunk into insignificance or worse. Even to speak of it is almost a breach of scientific etiquette.

CHAPTER VI

MODERN "INTELLIGENCE"

§ 1. View of Common Sense. § 2. Appropriation by Biology. § 3. Mental Tests and their Equivocality. § 4. The Problem of Concomitance. § 5 Upshot.

§ 1. *View of Common Sense*

The preceding lofty, but in the end not too felicitous, conceptions of Intellect had been, as mentioned, the handiwork of the philosophers. And accordingly, they had been obtained by the method which these favour: that of long and profound rumination.

But this fact of demanding arduous thought would hardly commend such conceptions to the plain man. His reaction in these circumstances was not indeed to combat them, but to put them reverently aside. For his own workaday purposes, he substituted what he called "intelligence". Originally the two words, as their construction shows, meant the same thing viewed from different aspects; the intellect was the permanent power, capacity, or faculty; whereas the intelligence (from the present participle) was this power in its occasional actual exercise; as said by Aquinas, "this word *intelligence* properly signifies the intellects' very act, which is to understand". Naturally enough, the power rather than the exercise would appeal to the philosopher, bent as he is on determining how far the human mind can conceivably extend its sway. But the actual exercise of this power here and now is what matters for practical purposes. Accordingly, not "intellect" but "intelligence"

it is which abounds in the earliest English general literature; that is to say, the writings not specifically psychological or philosophical. We encounter such passages as the following:

> " It excedyth myn intellygens " (1450).
>
> " O man devoyde of intellygence " (1507).
>
> " He spaires no lord for his piscense, Na clerk for his intelligence " (1508).

And such popular employment of the term intelligence has been vigorously maintained up to the present day. Always and everywhere the work has been applied by teachers to their pupils, by employers to their employees, by comrades to one another, by biographers to their heroes, and so forth indefinitely.

But this transfer of the word from philosophy to common sense has not occurred without alterations in its significance. For one thing, the term abates much of its grandiose character, its " highfalutin " air.

Not so commendable is its loss of definiteness. Already the classical term " Intellect " suffered to some extent from obscurity and changeability of meaning. But within fairly reasonable limits the philosophers almost always preserved for the meaning at least a solid permanent core. With them the term steadily and consistently comprised the power of abstract thought. But as regards the plain man, of all possible virtues surely he possesses in least degree that of clear and consistent thinking. And his ability to distinguish what should be called intelligence from what should not be so called would seem to approach zero. There is almost no kind of knowledge that he will not upon occasion include under this heading; there is but little that he will not sometimes exclude. At one moment he will say to somebody, How intelligent of you to remember that! And the next moment, That is not intelligence but only memory.

Although so insensitive to differences in things themselves, however, he is readily impressed by the differences that he finds in words. And so he has overlooked the fact that the "intellect" and the "intelligence" really denoted only the faculty and the exercise of the one self-same thing. Instead, he has taken the intelligence to be a further "faculty" (Chapter V, p. 107) in addition to the intellect. And so, over and above the intellectual power appearing under its own colours, we find it also posing as something else.

In such guise, it is a favourite source of inspiration to the press. The public is informed, for instance, that "The world of to-day is suffering from want of intelligence". Parents are told to stir up the "intelligence" of their children (and incidentally their own). Or, for greater emphasis, the word is replaced by what is taken to be its physiological equivalent, the brain, as in the following appreciation:



"I say, dear old Tubby *has* got *brains*!"

§ 2. *Appropriation by Biology*

But less than a hundred years ago there was a great gain of scope. This masquerading power, "intelligence", was suddenly and cordially adopted by those who, following the great inspiration of Darwin, were making prodigious advances in evolutional biology. On the mental side, the leader was Herbert Spencer. With him the nature of intelligence was not primarily determined by any analysis of what it is, but rather by an indication of what it does. He declares intelligence to be that mental power which promotes life; much as a child takes a tiger to be "What eats you up". But out of such a seemingly vague beginning he proceeds to develop a masterpiece of clarity. After elaborately demonstrating that life consists in "the adjustment of internal to external relations", he proceeds to the following statement which, if indeed rather difficult for the plain man, will no doubt be lucid enough for the thoughtful student:

> "Regarded under every variety of aspect, *intelligence* is found to consist in the establishment of correspondences between relations in the organism and relations in the environment; and the entire development of intelligence may be formulated as the progress of such correspondences in Space, in Time, in Speciality, in Generality, in Complexity."

As his next step, he is punctiliously, almost pedantically, careful to explain what sort of "correspondence" is here intended. He says that it occurs when

> "the *persistence* of the connexion between the states of consciousness is proportionate to the *persistence* of the connexion between the agencies to which they answer."

So much for what "intelligence" has to do. Of what nature, then, must its operations be in order to do

it? In reply, Spencer endeavours to reduce all such operations finally to nothing more than associative reproduction:

> "the growth of intelligence at large depends on the law that when any two psychical states occur in immediate succession, an effect is produced such that if the first subsequently recurs there is a certain tendency for the second to follow it."

On this basis he arrives at extending the scope of "intelligence" far beyond what had been included in the "intellect" of the philosophers, or even in the "intelligence" of common sense. Not only that "part of the soul" is embraced by which we know anything, but so are even the other two Platonic parts: those by which we desire things and get angry about them. In fact, almost the soul entire is captured. Using Spencer's own words, "Intelligence" is now made to embrace all such activities as those of

> "Instinct, Reason, Perception, Conception, Memory, Imagination, Will, etc."

Alone left outside its pale, apparently, are the elementary "impressions" or "feelings", sensational and emotional. These, not being "relational", do not—he says—constitute intelligence itself, but only "its raw material".

Along these lines, Spencer builds up an edifice which, philosophically and even psychologically, is indeed immense. But colossal figures are sometimes found to stand on feet of clay. And Spencer's imposing structure rested, as we have seen, on two assumptions. Firstly, that intelligence consists of nothing but reproductions, and secondly, that these are the sole mental activities which serve to establish life. Both the one and the other assumptions have fallen into general discredit.

Thus, instead of intelligence performing *all* the mental operations which promote life, it has been taken to be

responsible for only a *portion* of them. This much, as we saw, had already been maintained by Aristotle. For his intellect, despite its exaltation, was not said to be the beginning and end of mental life, but only to be one power in it out of three (the other two being sense and desire).

However, only a score of years after Spencer's publication, the credit of intelligence was further degraded. Far from being taken to be the one and only mental power concerned with life, it was now said not to make contact with this at all. Full tilt, not only against Spencer, but no less against all the old Greek philosophers, Bergson bursts into the arena. He agrees with Spencer that intelligence deals with what is relational; he even agrees with Plato and Aristotle that its sphere is of that which is immutable. But with wonderful dexterity, he converts both these virtues into vices. By reason of being able to cope only with relations, he says, it fails to arrive at the real things which are not relative but absolute. By reason of apprehending only the changeless, it is debarred from understanding real nature which is always changing. Post-mortem dissection is indeed performed by it competently enough. But comprehension of living wholes is an achievement that lies far beyond it. Its chief mission in the world, apparently, is " to make tools " !

After reducing Intelligence to this inglorious plight, however, Bergson introduces the saviour which is Instinct. With Spencer this had been lightly dismissed, as nothing more than intelligence operating in very simple cases. But with Bergson, far otherwise, instinct is taken to possess what Schelling had already called a " secret and wonderful power " (see above, p. 83); namely, " intuition ". This is depicted by Bergson as achieving just what the intelligence fails to achieve. Above all, it can deal with the continuous, changing, whole things, of which alone real Life is constituted.

Neither the elaborate construction of Spencer, nor the seductive eloquence of Bergson, could make any great impression on solid, stolid, common sense. But among serious psychologists there ensued not a little flutter.

An indication of this was the Symposium which in 1910 gathered several leading British authorities together for the purpose of bringing intelligence and instinct into their proper mutual relations. But the desire for a general agreement was not fulfilled. The views expressed as to the nature of intelligence, as also that of instinct, were more numerous and discordant than ever. For example, one outstanding psychologist, Stout, now takes the most characteristic mark of intelligence to consist in "attention".

Eleven years afterwards, a still larger Symposium was conducted in America for a similar purpose; and it had a similar issue. Together with a general agreement that intelligence helps the adjustment of the organism to its environment, there was a general disagreement as to how this help is actually afforded. But of this we shall hear more in the following section.

§ 3. *Mental Tests and their Equivocality*

Remarkable as has been the welcome accorded to this interloping "intelligence" by biological psychologists, a faculty under this name now finds another home that is incomparably more important still. For here the issue is no longer confined to the pleasance of academic discussion, but instead reaches out to urgent practical interests. "Intelligence" is taken to be something that can be measured by mental tests.

First in the field came Galton. And, unwittingly it would seem, he brought the word intelligence right back to the prehistoric meaning of the Latin *intelligo*; for

he took it to indicate the power of distinction and selection. In 1883 he wrote:

> "The only information that reaches us concerning outward events appears to pass through the avenue of our senses; and the more perceptive the senses are of difference, the larger is the field upon which our *judgment and intelligence* can act."

Accordingly he devised for detecting the "intellectually ablest" persons, a test of discrimination of weight, and he suggested analogous treatment of the other senses.

Along this novel path of mental testing there were many followers. But the first and in several respects most notable of these early workers, J. Cattell, made little if any use of the term intelligence. To some extent, however, this was taken into consideration by Gilbert in 1894. For he, having applied several tests, such as those of sensory discrimination and reaction-time, went on to see how far these abilities measured by tests correlated with "intelligence" as estimated by teachers.

Of quite other importance, however, was the landmark set up along this route in 1897 by Ebbinghaus. This time the idea of intelligence was submitted to an elaborate analysis. The result was to identify it wholly with the power of "combination". This he defined as a response to many separate impressions by a thought which fits them all. Such analysis was then conscientiously applied by him to the construction of a corresponding test. For this purpose he found to his hand the then popular game of "missing words". From some writing, a number of words or parts of words are omitted. And the testee has to fill in the gaps as best he can.

The next player on the stage was Binet. For many years he produced tests in great variety, but making little if any use of the notion of intelligence. Instead,

his tests were explicitly and very cleverly designed to measure what he called the faculties of memory, imagination, attention, observation, discrimination, suggestibility, and so forth.

In 1904, however, the present writer proposed a new theory, wherein all such separate faculties were replaced by a single one called—with much reservation—" general intelligence " (Chapters XXXVIII and XXXIX).

About two years later, Binet again entered the scene, and this time after a curiously double fashion. In explicit theory he still strongly maintains his former doctrine of multiple separate faculties; but in actual practice he now tacitly adopts the procedure of the rival theory, that of the " general intelligence ". He still continues to state that his

> " Mental tests, always special in their scope, are each appropriate to the analysis of a single faculty."

But in point of fact, he now abruptly ceases to measure any such separate single faculty at all; instead, he quietly throws all the test scores into one general measure. He wants, it would seem, to run with the hare and yet hunt with the hounds.

As for subsequent testers, they have displayed the greatest possible discrepancies. Some have expressed views which in truth go back to the comparative clarity and simplicity of the original " intellect ". Thus Terman has maintained that

> " An individual is intelligent in proportion as he is able to carry on abstract thinking."

But other writers, on the contrary, have turned intelligence into an extraordinarily complex affair. Thus Haggerty wrote that

> " It is a practical concept connoting a group of complex mental processes traditionally defined in systematic

> psychologies as sensation, perception, association, memory, imagination, discrimination, judgment and reasoning."

Yet other writers have arrived at still greater multitude of constituents. For Freeman, intelligence included

> "Sensory capacity; capacity for perceptual recognition; quickness, range or flexibility of association; facility in imagination; span or steadiness of attention; quickness or alertness in response; mental balance; the judicious management of the processes of learning or reflection; mental control; mental adjustment; the direction of the attention toward the significant aspects of experience; a due degree of non-suggestibility; the adoption of intellectual purposes and the adaptation of means to their satisfaction; sensitiveness to significant combinations between experiences which illuminate one another or which are effective in building up systems of thought; balance and sane reaction to the entire world of things, ideas and persons."

Turning from these theoretical views of the later testers to their actual practice we find them fall into three main groups. The members of one adopt both the pooling system in general, and even Binet's tests in particular. But unlike these latter, their tests explicitly claim to measure "intelligence". On the other hand, however, they make no attempt whatever to conform to this title in actual practice. Thus Terman, in spite of declaring intelligence to be the power of abstract thinking, still continues to employ even such extremely non-abstract tests as that of discriminating weights.

The second group of testers also retains the procedure of pooling very many tests together. But although the whole pool is still taken to measure intelligence, the tests themselves are radically changed; not, however, in the interest of psychological lucidity and consistency, but in that of mass production. In such

tests as Opposites and Cancellations, a means has been obtained of readily testing children by thousands at a time.

The third and youngest group of testers has been inspired by the "performance test" of Pintner. The main aim of these—to reduce the influence of language—is clearly admirable. But let us suppose that this aim is achieved, and that tests are devised which no longer involve language. We are still left inquiring what they now do involve. The task of making all the different tests really conform to any unequivocal notion of "intelligence" would seem to be farther from accomplishment than ever.

But if all this be so, and if tests of "intelligence"—since the work of Ebbinghaus at any rate—have been made up of many parts selected and conjoined regardless of how intelligence itself is taken to be constituted, then what principle has ever guided their construction at all? The only answer would seem to be that they have been fashioned tentatively, groping about on the trial-and-error plan. And their criterion of success has almost always consisted in correspondence with success at school work; the validity of the test, or scale, or team of these, has been rated by its degree of agreement with the marks or estimates given by teachers. But in this criterion itself the equivocation really still persists. For instance, one teacher may perhaps base his estimate on the pupils' ability to learn Latin. Another may have to be guided by capacity for mathematics. Another, for history, or physics, or biology, and so forth in great number.

There is, then, little cause for surprise if some of the wisest authorities still regard the current "intelligence" tests made and employed on such principles—or rather, such a lack of principle—with grave suspicion.

§ 4. *The Problem of Concomitance*

But the preceding trouble of equivocality does not stand alone. There is another one still more embarrassing. Suppose that somehow or other psychologists did arrive at an agreement as to what the term intelligence should be taken to mean. They would still be faced by Plato's problem as to whether, in this chosen meaning, it represents one single entire faculty. And this problem, even if it was somewhat otiose in its ancient philosophical reference, becomes extremely acute in its modern application to measurement.

Let us put the matter as follows. We will suppose that the tester manages by hook or by crook to conceive "intelligence" as the faculty of performing some definite mental operation; for example, that of abstract thinking. And we will further imagine hopefully that he constructs his test in such a way as to embody some such operation; for example, the test of Opposites. To employ such an actual test as a measure of "intelligence" in general would still imply that ability for this particular form of abstract thinking goes hand in hand with that for all other forms. And this assumption is indeed large. In more or less degree, abstract thinking pervades almost every sort or description of knowledge, from the most scientific down to the most popular. How shall ability for every item in this vast sphere be assumed to go hand in hand with success in such trivial performances as saying what is the opposite to long?

§ 5. *Upshot*

We have been considering that endeavour of psychology which of all others is characteristically modern; that to which probably the greatest amount of labour has been devoted; and that by which has been excited

the greatest enthusiasm. It is the endeavour to deal scientifically with, and above all things actually to measure, the mental power entitled "intelligence". On the issue of such measurements is at the present day made to depend the fate of many thousands of school-children, not to mention a vast number of older persons. Truly, an undertaking like that of the Titans. Let us hope that it will end more fortunately.

To begin with, we noticed its inauspicious origin. At the start, the word meant nothing more than the "intellect" in actual operation, as contrasted with mere potentiality. But then it fell into popular usage and there, as usually happens, its meaning became very obscure. In particular, it lost its original and proper connection with the "intellect", and was taken for a more or less different faculty in the sense explained above.

Very much later in history, the word was dragged back again from popular to scientific usage; firstly by biologists, and secondly by mental testers. But then became obvious its need of an unequivocal meaning. To obtain this, numerous and strenuous efforts were made to devise an acceptable definition. But the result has been only to show that everyone wants to define it differently. What is worse still, those who profess to measure it take no account even of how they define it themselves. Moreover, these discrepancies are not of such a slight or remote order that we may for the present conveniently waive them. Take for illustration the original declaration of Spencer that intelligence includes all such faculties as "Instinct, Reason, Perception, Conception, Memory, Imagination, Will, etc." There is not one of these (save perhaps "reason") about which the authorities have not been in widespread contradiction as to whether it should be included or excluded.

But an even greater trouble befalls this "intelligence"

because of its claim to be measurable by tests. For such a claim assumes that ability for such trifling stunts as constitute most of the current tests is always accompanied by everything that is called "intelligence" in ordinary life. To make such an assumption with little or no evidence seems extravagant.

The resulting situation is that one half of modern psychologists are supplying the world with alleged tests of "intelligence", whilst the other moiety are condemning this service as fallacious, and even pernicious.

CHAPTER VII

'ATTENTION'

§ 1 The Modern Babel. § 2. Another Masquerade. § 3. A Saving Grace. § 4. Upshot.

§ 1. *The Modern Babel*

Not remote from the faculties of the Intellect and Intelligence is that of "Attention". Often this has been extolled as a discovery—indeed, the pre-eminent discovery—of quite recent times. But far from this really being so, it has a long and extraordinary past.

We can hardly call modern even Chr. Wolff, who brought this attention to very widespread notice. He counted it among the fundamental cognitive powers, defining it as

> "the faculty of causing one part of a compound percept to be clearer than the others."

And from that time forth, this faculty has risen to a dominant position. But its towering growth would appear to have been achieved at the price of calling down upon its builders the curse of Babel, "to confound their language, that they may not understand one another's speech". For the word "attention" quickly came to be associated by them with a diversity of meanings that have the appearance of being more chaotic even than those of the term "intelligence".

Some writers have followed in the footsteps of Wolff, and have used the word to denote the power or process of engendering perceptual clearness. But others

have gone very much further in this direction, for they have defined it to mean *clearness itself*. This would appear to be the position of Shand.

> " The clearer awareness of the object which invariably follows from attention to it is not so much the result of attention, as it is attention itself."

Similarly, Titchener:

> " In the last resort, and in its simplest terms, attention is identical with sensory clearness."

A few have modified this meaning to what they denote by some such name as " *vivacity* ". Thus, Condillac says that

> " A sensation is attention, either because it is alone, or because it is more vivacious than all the others."

Another section have preferred to apply the word to the *intensity* of consciousness. This was done by Herbart, Fechner, G. E. Müller, Carpenter, and Bradley. Similarly in more recent years, Messer says that attention is

> " A higher grade of consciousness of an object."

In the fine description of C. Read it indicates certain "degrees of fulness and intensity " of consciousness. Whilst Ward calls intensity the " very matter " of attention.

Often the term is made to cover not only clearness but intensity as well. This would appear to have been done in the explanation of Ebbinghaus and that of Dürr, in the penetrating analysis of W. McDougall, and in the broad survey of Yerkes. Here, however, the objection immediately arises that these two characters are not only different, but more or less independent of one another.

Other notable psychologists have been extremely subtle and elaborative. Such a case is that of Beneke, who writes (in his peculiar terminology) as follows:

> "Of the special traces or tendencies stored within the psyche, a larger or smaller proportion can, through varying causes, flow to the production of a particular sensation or sensory perception. The proportion between that which in each case really flows (or is excited) to that which is present altogether constitutes the degree of *attention* for the sensory impressions."

All this passage is curiously suggestive of a hark-back to Epicurus. Anyway, whatever may or may not be meant by this surprising "*proportion of special traces or tendencies*", it clearly is something not found in actual experience, but only conceived hypothetically.

Not very different perhaps are the conceptions of attention as an "energy" by Fortlage, Porter, Maudsley, Th. Lipps, Baldwin, Maher, and Geyser.

Far commoner than the above view—in fact, perhaps the commonest of all—is a sort of pinchbeck imitation of it. For here, too, the leading idea is that, when any object becomes clearer, other objects become less clear. But this time any appeal to a hypothetical "energy" is expressly disclaimed. Psychology, it is said, ought to confine itself to the actually observable characters of conscious processes, such as their clearness. On this basis, the strange explanation offered is that the waxing of clearness in one process constitutes only "another aspect" of the concomitant waning of clearness in the other processes. The two aspects together are described as a "concentration", a "focussing" of consciousness or attention. But to regard the clearness of one process as an "aspect" of the unclearness of another would seem to transcend, not only common sense, but any sense whatever.

There is little wonder, then, that many acute psychologists have thrown overboard any such bare abstractions as clearness and so forth. When they carefully examined what really occurs in "attending", they

always found *some definite concrete process*; and this, accordingly, was adopted as the meaning of the word. Thus, for Lotze, it is

> " Our relating and comparing faculty of knowledge."

Here would appear to come also Hickok, Morell, Ulrici, Ladd and Woodworth, Bergson, and Ueberhorst. Still more recently, Dawes Hicks takes it to be

> " Active apprehension " . . . " distinguishing and relating the elements presented in the world of concrete fact."

We may turn to yet another usage. Many authors denote by the word, neither any abstract character as clearness, nor any complete process as a comparison, but some *special stage* in a process. Often this is the initial stage. Thus Höfler says that

> " Attention means to be ready for mental work."

Oppenheimer calls it

> " The preparation of certain sensory cells for the reception of a new sensation or idea."

Or else, on the contrary, it is taken to refer to the later stages; the word is said to mean:

> " a holding steady " (Volkmann);
>
> " a fixation in the understanding " (Thurot);
>
> " a conservation (Malebranche)."

Lloyd Morgan combines both stages:

> " We may describe attention as the bringing of something to the focus of consciousness and the holding it there."

At this point in our survey we may turn to a large section of psychologists who have extended and diversified the meaning of attention still further. In all its

versions so far recorded it has at least continued to be interpreted as of a cognitive nature. But now it is explicitly represented as being volitional, conative, or orectic. (For these terms see Chapter VII, p. 303.)

Thus Huxley writes of

> "That form of desire which is called attention."

The latter is similarly defined by Stout as

> "simply conation so far as it requires for its satisfaction fuller cognisance of its object."

The same usage of the word is chosen by Ehrenfels, but with frank recognition of its arbitrariness.

Even in such volitional views, however, scope has been found for applying the word diversely. For many authors, but not others, have restricted it to volitional acts of higher order. For instance, Stewart, following Reid, declares that

> "There is an important difference between consciousness and attention, which it is very necessary to keep in view, in order to think upon this subject with any degree of precision. The one is an involuntary state of the mind; the other is a voluntary act."

In agreement are others too numerous to be mentioned here; they notably include Kant and Maine de Biran.

Many other writers take up a position at least akin. Jouffroy, for example, writes:

> "Attention and reflection are nothing but the capacity of knowing applied by the will to things external or internal."

Not unrelated is Thorndike, who separates the "facts of attention" from the "feelings of attention". Here appear to come also Calò and Angell. Here, too, must be counted the authority of Wundt. For him "attention" (*Aufmerksamkeit*) denotes the feelings and sensations which constitute will and effort. This usage is

followed by Wirth, who, however, retains his characteristic independence.

To enhance the modern embroilment, the question of conation has been inextricably interwoven with that of "activity". This and attention have by many philosophers been more or less identified with one another. Indeed, the occurrence of the attention has been utilized as evidence for that of the activity. Such a position would appear to be held very widely indeed.

But this view has been met with a flat counter-assertion by many others, as by Schuppe, who says that in attention

> "of any action—nothing is to be found."

The alleged direct awareness of activity is declared to be at bottom nothing more than sensations from the muscles and tendons.

This question of activity may, perhaps, be among the most important of metaphysics. But certainly few are more disturbing to the peace of empirical psychology. The latter, caught between the two contending philosophical schools, might well cry out, "a plague o' both your houses".

Yet another widely held view of attention is that which would make the term equivalent to the entire adaptation of the organism for any particular reaction to its environment. Thus, van Biervliet writes that

> "Attention is an attitude alike of the mind and of the body, a state partly conscious and partly unconscious. . . . The intellectual tension is always accompanied by a modification in the tonicity of a more or less considerable number of muscles; it determines, or seems to determine, more or less profound changes in the circulation and in the respiration."

But despite all these views which psychologists have for many centuries repeated time and again, there are

other views wherein modern writers have managed to display no little originality. For example, attention is defined by Marshall as

> "the appreciation of a combinational sense of relation due to the coincident effectiveness of the intensity and manifoldness of relation."

Calkins, on the other hand, writes:

> "Attention is an elemental, a further unanalysable and an indescribable sort of consciousness. . . . Attention—is just attention."

Exactly the opposite is said by Croom Robertson, for whom

> "Attention is pre-eminently a complex mental function, involving Intellection, Conation, and Feeling."

Stumpf calls it

> "a pleasure at noticing an object."

Rignano, however, says that it is

> "a conflict of two affective tendencies."

To Ziehen, it appears to be nothing more than

> "the absence of disturbing or distracting sensations."

And in the thoughtful little manual of Judd it becomes

> "merely a name for various phases of selective arrangement within experience."

This list might be extended indefinitely. In truth, there is hardly an element, or aspect, or relation, of consciousness wherein this "attention" has not been located by some one or other. It is a veritable derelict, for which all are seeking to provide a home, a refuge, or at least a *raison d'être*.

Confronted by this jangle of contradictions, we may

be excused for not sharing the confidence of Haven, who doubted whether it is

> " necessary to define a word so well understood."

Or that of Holland, who said outright that it is a

> " term needing no definition."

Or even of James, who in our own times writes:

> " Everyone knows what attention is."

Better justified would seem to be the opposite extreme of pessimism, as that of Külpe, who declares that every psychologist with pretensions to independence determines the nature of attention after his own fashion. One is more inclined to agree with Ebbinghaus, who calls attention

> " a downright embarrassment for psychology."

Or with Vaschide and Meunier, who say that

> " the psychology of attention is still to make."

Or with Geyser:

> " Wherever any exception, anything peculiar in the psyche makes its appearance, there ' attention ' is sure to stand ready to offer in its broad arms protection and shelter. If only we knew equally well, what this ' attention ' is ! "

There would appear to be something to say even for the drastic advice of Foucault:

> " We ought deliberately to renounce all use of the notion of attention, and even the utterance of the word."

§ 2. *Another Masquerade*

Perhaps the best way to clear up this marvellous imbroglio is to see how it ever arose. For this purpose we must go back further even than we have done already. And once more, as so often previously, we shall find that

much of the trouble derives from language and in this must needs seek its elucidation.

The story begins with the ancient phrase, *τὸν νοῦν προσέχειν*, which can scarcely be translated otherwise than as "to direct the intellect towards". We are thus back at the original intellect again, with no other change save that now it was taken to be at a person's voluntary disposal; in this sense the phrase occurs in Plato's writings thirty-six times. But those authors who, as Strato, especially inclined to maintain that even sensory perception is of an intellectual character, accordingly extended the phrase to perception also.

In due course, this and the cognate terms passed over from the Greek language into the Latin. Thus Plautus, as also Terence, who both made their literary fortunes by adaptations from the Greek, employed expressions of this kind repeatedly. The usual Latin renderings of the *τὸν νοῦν προσέχειν* were *animum advertere*, *animum adjicere*, or *animum attendere*. At that period, it would seem, *animus* was the common equivalent for the *intellectus* or "intellect". But whilst *advertere* and *adjicere* mean again "to direct", *attendere* introduces an additional shade of meaning; it implies that the directing involves more or less "tension".

When we next meet with such phrases—in the writings of another Hellenizing Roman, Cicero—there come for the first time the substantives *attentio animi* and, still more frequently, *intentio animi*. This supersession of *adjicere* and *adhibere* by the words containing instead the dynamic concept of "tension" may perhaps be attributed to the influence of the Stoics, who tried to make tension (Greek *τόνος*), explain, not only cognition, but the entire cosmos.

In course of time, however, familiarity produced its usual effect of abbreviation. The *attentio* began to be used without any accompanying *animi* (although the

latter word continued to be employed freely in other connections). After some three or four centuries, this omission had become quite customary; Aelius Donatus pointed out as a notable circumstance the fact that such writers as Terence—for himself, already "ancient"—had been unable to omit the *animi*, as was the common practice of his own day.

But this acquired easy-going omission was fraught with momentous consequences. The meaning of the omitted portion of the phrase came to be realized in an increasingly obscure manner, and to fuse more and more inseparably with that of the portion surviving.

As everyone knows, the history of language is full of such degenerations. In the evolution of verbs, for instance, at first the actor is distinguished from the action by a separate word, the personal pronoun. But this, by dint of constantly accompanying the verb, eventually coalesces with it into a single word. Thus, in Latin, we find the root *am* fusing with the pronouns into *am-o*, *am-as*, *am-at*, and so forth. A few centuries later, when these words have passed over into the French language, the pronouns have further degenerated as shown in *aim-e*, *aim-es*, *aim-e*; though still partly visible, they are now inaudible. Later still, the very meaning becomes forgotten, and a new set of pronouns —*je*, *tu*, *il*—is supplied, this time being put in front of the verb instead of behind! Much the same process of atrophy had befallen the original pronouns in the English *lov-est*, *lov-es*.

Such, then, was the fate of the *attentio animi*. Not only did the word *animi* disappear, but also its signification receded into deeper and deeper obscurity.

But hereupon ensued yet another and still more eventful change. The *attentio*, from being thus used more and more independently of the *animi*, began *to be taken as a further cognitive power*.

The first time that we hear a voice raised to protest against this new power, as containing nothing for which provision had not already been made in the old ones, is the following passage from Philoponus, sixth century A.D.:

> "But the more recent interpreters, standing not in awe of the frown of Alexander, not listening to Plutarch, and even repelling Aristotle himself, have devised a new interpretation. . . . According to them, the rational soul not only comprehends the faculties of the intellect (*νοῦς*), thought (*διάνοια*), opinion (*δόξα*), will (*βούλησις*), and election (*προαίρεσις*); they also thrust into it another sixth faculty, which they call that of Attention (*προεκτικόν*)."

This protest seems to have been effective for the Middle Ages. During a long period we hear little more of the intruder. Only on rare occasions, as in the works of Michael Ephesius and Psellus, is "attention" again defended as one of the faculties. Aquinas, indeed, employs *intentio* very frequently and *attentio* sometimes, taking them, apparently, as synonymous. And in both cases the *animi* is omitted. But he gives to them no place among the faculties; moreover, he is very careful to explain what he means by the words.

The snake had only been scotched, however, not killed. The belief in a special power of "attention" had entered into ancient thought and language too deeply to be eradicated. Although for the time excluded from the fundamental powers of strict psychology, it never loosened its hold upon the psychology of the street. To prevent its rising again into orthodoxy was a task requiring all the vigilant criticism of the Schoolmen. But with the advent of the Renaissance, this criticism was relaxed. The long hardly suppressed *attentio* now breaks out into every modern language, as "attention", "*attensione*", "*Aufmerksamkeit*", and so forth. The obliviscence of the original sense of the word is indelibly registered in such expressions as to "direct one's attention towards".

Taken literally, this is the absurd tautology of " to direct one's directing-towards towards ".

The earliest large success of the revival came in connection with the topic which at the time was captivating general interest. Descartes, having stumbled after Augustine into the morass of " universal doubt ", was struggling to pull himself out again. For this purpose he was borrowing the ancient view of Theophrastus (as also of the Stoics and the Epicureans), that assent to a proposition is justified whenever the mental content in question is sufficiently " clear ". Thus re-born, the criterion once more gained ready acceptance. And although the Stoics and the Epicureans had seen in it a corroboration of their doctrine that all knowledge is at bottom sensory, the Cartesians easily managed to persuade themselves that it gave support to their contrary doctrine of the supremacy of the intellect. Soon afterwards, the suggestion was advanced by Malebranche that, to obtain this clearness, nothing is more helpful than the " attention ". Leibniz takes curiously little heed of this remark; although he had a tempting opportunity, when discussing the metaphysical deductions to be drawn from the unclearness of perception as contrasted with the clearness of *ap*perception. But, as we mentioned, his chief disciple Wolff gave to attention in this sense the most cordial welcome. With what results, we have seen at the beginning of this chapter.

After all, then, this chameleonic " attention " has turned out to be no new faculty at all. It is only, like " intelligence ", a masquerade of the original and classical " intellect ".

The original view seems to have been that the application of the intellectual faculty to its various and changing objects involves some sort of " tension ". The applying of the intellect was accordingly designated as the " *attentio animi* ".

But this phrase was soon abbreviated to simply *attentio* or "*attention*". Then in course of time the loss of the word *animi* was followed by that of its significance. "Attention" continued to be spoken of, but ceased to have any definite meaning. What then happened seems to be what generally does happen to a word when its meaning lapses into obscurity. It can be taken for almost anything with which the meaning is closely associated; as a man shooting by twilight may miss the bull's-eye and yet hit an outer ring. So it is, probably, that "attention", instead of being correctly understood in the original sense of directing the intellect, may be taken to be anything else closely connected with this event. Thus it comes to be defined sometimes as the clearness that *results* from such directing, at other times as the effort that *produces* it, or again as the bodily states that *accompany* it, and so on.

§ 3. *A Saving Grace*

Despite all this diversity of definitions of "attention", equalling or even surpassing that of "intelligence", the former faculty has one vital advantage over the latter. Being even more extravagant, it has even less the courage of its convictions.

For instance, the very writers who thus insist that clearness is not the result of attention but is attention itself, themselves never really treat the words "attention" and "clearness" as being thus interchangeable. If anyone thinks that he does so, let him try to replace "clearly" by "attentively" in the following sentence: "I could not perceive the object clearly although I paid great attention to it". Evidently, the substituting makes nonsense.

In order to discover a definition that *will* fit the sentence we may go back to the meaning which "attention"

bore over two thousand years ago, before linguistic and psychological evolution had played such tricks with it. This, as we have seen, is simply " the direction of the intellect ". Hereupon we get quite straightforwardly, " I could not perceive the object clearly, although I directed my intellect towards it ".

But the fit possibly becomes even better if we go back not quite so far, and let in something of the dynamic character of the Stoic doctrine. Our test-sentence then becomes, " I could not perceive the object clearly although I directed my mental energy towards it ". *This* rendering of " attention ", although not often entering into the formal definitions of the term, would seem to have been quite remarkably constant in its actual usage —even by those authors who defined it most differently.

On curious inquiry, why this rendering should be so exceptionally favoured, one answer at any rate would be that it has been found to correspond best with the actual facts at issue. How very well it does this—and the better, as the facts become more fully known—is manifest in the recent important work of Aveling on *Directing Mental Energy*.

However, the embroilment of the word in other versions has perhaps not all been wasted labour. As a result of dragging on the scene various characters which do not genuinely constitute attention, but are only associated with this, these characters have at any rate been usefully brought to notice and study. As we shall see later on, the connection of the intellect (or " intelligence ") with such things as clearness, conation, adaptive movement, and so forth, brings forth problems of deepest interest.

§ 4. *Upshot*

The concept of " attention " has been found by us to suffer from extraordinary diversity and contradiction;

more so even than that of "intelligence". But still we have been able to trace it back to an unequivocal source. Originally, or at any rate with Plato, "attention", like "intelligence", meant nothing else than the exercise of the "intellect". But eventually, again like "intelligence", it was taken up as another faculty into common sense, and here as usual suffered the penalty of becoming extremely obscure. So much so, that when psychologists turned to it again, they were all set by the ears.

Nevertheless, the "attention" has at least enjoyed one great advantage over the "intelligence". This is that, however diversely defined, it has nevertheless been uniformly applied. It has retained its original Platonic intellectuality, with but a dash of the subsequent Stoic dynamism. And if this rendering has won for itself such a strong and permanent hold of the term, this survival of it may possibly be due to its superior fitness.

CHAPTER VIII

SENSORY FACULTIES

§ 1. Sensism. § 2 Anti-Sensism. § 3. Sensory Basis of Knowledge. § 4 Claim to constitute Faculties. § 5. Upshot.

§ 1. *Sensism*

Intellect, Intelligence, Attention! All three substantially the same! All of them as near as may be to the last and supreme power of Aristotle which is often translated into English as "reason", and which is overlord of the Platonic triad, being that "part of the soul" which "learns". Besides this great One-in-Three, what other power of knowledge, if any, is taken to be possessed by man?

A not unworthy rival. The supremacy of the intellectual power has never been allowed to pass unchallenged. At the very time when half of cultivated Athens were flocking into the grove of Hecademus to listen to Plato's discourse on the rule of the intellect, the other half were going to the rival school of Aristippus, who declared that true knowledge lay in *sense* alone. This was "Sensism".

The choice between the one doctrine and the other appears to have always depended in large measure on temperamental influences. The very marvellousness attributed to the classical intellect, which has been so attractive to numerous thinkers, has to others been only repellent. In all races of men, among the many faithful there is also to be found a sprinkling of sceptics.

Moreover, the high valuation of the intellect, whether or not justifiable, is only to be reached by a considerable effort of thought; it can never be easily assimilated by the psychology of the street. To the plain man, the one unquestionable kind of evidence will always be that of his own senses. The trees which he sees around him, the birds which he hears singing, the solid ground which he feels beneath his feet, about all these perceived physical things how can there be any sane doubt? But who is able to show him anywhere a transcendental "intellect"? This seems to him only a conceit of philosophers, whom much thinking hath made mad.

Owing, probably, to this connection both with interest in physical things and also with a certain temperament, sensism has usually arrived with two companions; on the one hand, materialism; and on the other, hedonism. That is to say, those who have taken the sole knowledge to be sensation have generally also believed that the sole reality consists of matter, and that the sole good is pleasure.

Thus, among the most ancient philosophers of the East we find the Nastikas, who were so named because they said "No" to everything except the evidence of their own senses. For them, it is reported, the sole realities were the material elements: earth, water, fire, and air. And as to their ethical code, they have bequeathed it pithily in the following verse:

> "As long as he lives, let a man live happily;
> After borrowing money, let him take strong drink."

But whilst in India these three sister doctrines were soon overwhelmed with general contempt, in the Western Hemisphere they have all managed to lead a prolonged and fairly prosperous existence. As early as the fifth century B.C. Empedocles—according to common accounts—identified all thought with sensation. He, too, like the Nastikas, maintained that the elements of all things whatsoever are earth, water, fire, and air; the whole

manifold cosmos, even the human psyche itself, was held by him to be nothing more than these elements in various admixtures and movements.

Subsequently, sensism developed and hardened. There arrived the sophist and hedonist, Protagoras; the hedonists, Aristippus and Epicurus; the sceptic, Pyrrho; and, as an exponent, if not originator, Lucretius.

Later, in the antipathetic atmosphere of Neoplatonism and of Christianity, sensism seldom showed itself definitely. It has been commonly ascribed, however, to the Stoics, and to the Nominalists.

But at the Renaissance it seems to have flourished anew. After breaking out, apparently, with Campanella in Italy (*sensum solum sapere*), it invaded England and there made for itself a permanent home in that "empirical" school whose fundamental tenet was that all knowledge of the external world is given in sensory experience. The generally acknowledged founder of this school was Hobbes. But still more influential has been subsequently Locke, with his celebrated comparison of the original state of mind to that of blank paper to be written on by experience; a plagiarism, by the way, from the *χάρτη εὐεργὴ εἰς ἀπογραφήν* of the Stoics more than a thousand years earlier. And the climax, perhaps, was reached in the mordant criticism of the intellect by Hume. From these British authors, the sensist doctrine soon spread over to France, where the soil had long been prepared for it by Gassendi, and where it now throve vigorously in the congenial period of the so-called "Enlightenment". As developed in the famous imaginary statue of Condillac, which was conceived to be gradually endowed with the various senses, it seems to have dominated the French psychology for three-quarters of a century. This writer's work

> "acquired the authority of a dogma. It was commented, developed, and diligently presented in all its most precise

> and clear forms. No one thought any further of putting its principles into question."

In other countries also, the doctrine of sense was cordially espoused by numerous authors of credit and renown.

After enduring a temporary set-back through the influence of the French spiritualists, it was again brought up to the surface by the materialism of the nineteenth century. A powerful ally, moreover, presented itself in the then rapidly growing science of physiology. This is naturally inclined to emphasize the senses rather than the intellect, because it is incomparably better acquainted with the corporal substrate of the former than with that of the latter. Moreover, its general standpoint is not easily reconciled with the alleged intellectual transcendence. Neural processes, sensory or otherwise, begin and end " here and now " ; their nature, as commonly apprehended, leaves little room for any communion with the infinitely remote.

Among psychologists at the present day, the foremost representatives of sensism, or the doctrine that all knowledge is sensorial, are generally taken to include Ziehen, Mach, and Titchener ; often also Sully, G. E. Müller, and Ebbinghaus are counted on this side. Among philosophers, considerable support is afforded by some of the " neo-realists ".

§ 2. *Anti-Sensism*

At the opposite extreme lies the doctrine that, even in the case of sensory perception, the senses themselves play an almost negligible part. Voicing this belief is the frequently quoted and widely accepted distich which goes back far beyond even Plato to one of his great creditors, Epicharmus:

> " The Intellect sees and the Intellect hears.
> The Rest is blind and deaf."

Several passages in the works of Plato himself seem to be inspired by the same view. Aristotle adopts the very words of Epicharmus (like Plato, without acknowledgment). Equally emphatic is the saying of Strato,

> " without thought, there is no perception."

The Stoics, similarly, regarded the difference between perception and intelligence as one only of degrees. Tertullian, also, writes :

> " Is it not true that to employ the senses is to use Reason ? "

Kindred views were expressed by Plotinus, Lactantius, and later on de Raei. Aquinas, in spite of his dictum that all knowledge starts from the senses, nevertheless seems to go further still :

> " To cognize the nature of sensory quality is not the function of the senses, but of the intellect."

As for Bovillus, he turns the said dictum of Aquinas upside down, declaring :

> " There is nothing in Sense which has not been before in Intellect."

At the Renaissance the expressions by no means weaken. Malebranche maintains that

> " there is no difference on the part of the understanding between simple perception, the judgment, and the process of reasoning, except that the judgment and the reasoning are perceptions much more complex than the simple one."

Still later, even the epigram of Bovillus is repeated (once more without acknowledgment) by Hegel. Hamilton, too, says :

> " It is manifestly impossible to discriminate with any rigour Sense from Intelligence."

J. H. Fichte declares that even in sensation really

> " The whole spirit is present."

So, too, still at the present day. Possibly Maher may be interpreted this way when he finds already in sensory perception

> " the higher cognitive energy of the mind towards something actually present to it."

§ 3. *Sensory Basis of Knowledge*

Taken by themselves, such passages as those here quoted would seem to indicate the greatest doctrinal extremity, or even extravagance, either *for* sense or *against* it. But in most cases the same authors themselves in other passages are inclined to greatly moderate their tone.

In this manner, although they do indeed reiterate that all knowledge of the external world is given in sensation, we almost always eventually find them taking this only to mean that all knowledge *starts* from Sense as its basis. But this much has rarely, if ever, been disputed. Even the celebrated aphorism, in which Locke is commonly said to have expressed the quintessence of sensism,

> " There is nothing in the intellect that was not before in sense,"

was, in point of fact, never uttered by him at all, but, on the contrary, by the chief of those whom he was ardently attacking, the Schoolmen. And it was believed by them—quite correctly—to represent the old original view of Aristotle himself. The upholders of the intellect have not only admitted that sense also exists—this double source of information was in fact, as we saw, their fundamental tenet—they have furthermore cordially agreed that knowledge always starts with sense ; they have only objected that it does not stop there. But the Stoics did not make it stop there either ; for them, too, truth can

only be secured by the eventual assistance of the intellect. Even Epicurus allowed the mind to have both an irrational and a rational part. Campanella, for all his cited apothegm (p. 150 above), still asserts that the sole ultimate judge is the intellect; he even finds fault with Aristotle for not having made this clear enough. Locke, far from stopping short at the knowledge afforded by the senses, declares that subsequent mental operations, such as comparison, can engender "a large tribe", "a vast extent", of further ideas. He does, indeed, say that there are

> "no innate principles in the mind", not even "those magnified principles of demonstration, 'whatsoever is, is' and 'it is impossible for the same thing to be and not to be', which, of all others, I think have the most allowed title to be innate."

But this passage, and perhaps the greater part of his work, would appear to suffer from an inadequate understanding of the term "innate".

Eventually, he states clearly enough:

> "If we will reflect on our own ways of thinking, we shall find that sometimes the mind perceives the agreement or disagreement of two ideas immediately by themselves without the intervention of any other; and this, I think, we may call intuitive knowledge. . . . This part of knowledge is irresistible, and like to bright sunshine, forces itself immediately to be perceived, as soon as ever the mind turns its view that way; and leaves no room for hesitation, doubt, or examination, but the mind is presently filled with the clear light of it. . . . He that demands a greater certainty than this, demands he knows not what, and shows only that he has a mind to be a sceptic, without being able to be so."

Could stronger language have been used by the Schoolmen, by Aristotle, or even by Plato himself?

There is thus a tolerable consensus of opinion, at any

rate to a certain point. The great majority of psychologists have agreed that underlying all knowledge there is some sort of sensory experience; in its most primitive state, some "Sensation".

But great trouble begins when the endeavour is made to determine how the two, knowledge and sensation, shall be deemed to co-operate. Take, for instance, the Kantian view, that sensation supplies the material to which the intellect imparts form. If the material itself is but an airy nothing, how is it ever going to become in the slightest degree real, merely by dint of providing it with a form that is no less fictitious?

§ 4. *Claim to constitute Faculties*

There is one more great problem about sense perception. Can it, like intellect, be admitted to constitute a "faculty"?

In much of the writing on the subject the answer, explicit or implicit, has been in the negative. For the theory of faculties consists essentially in deriving multitudinous processes from few powers; but in the case of sensation, as treated by many psychologists, no such derivation from few powers is proposed. The mental structure is not taken to be oligarchic but anarchic. The information supplied by the sense is simply and completely divided up into an immense number of elementary "sensations". And on these, as we shall see, is centred much of the most acute controversy of the present day.

Other authorities, however, do derive even sensory knowledge from a few faculties. This, as we saw, was expressly done by the Schoolmen. These—on carefully considered grounds—allowed one separate power for each of the senses, sight, sound, touch, and so forth.

To the man in the street, all such discussion might

seem to be nothing but philosophical verbiage and waste of good breath. But even he may begin to realize that there is something more at issue, when he learns that these faculties have been used as an argument for revolutionary change in education. The demand has been made that each of them should have its own separate school or college. One for the " eye-minded " pupils, one for the " ear-minded ", and so forth. This and other vital issues at stake will have further consideration later on (Chapter XI).

§ 5. *Upshot*

In this chapter we have gone over from the intellect (with its aliases, intelligence and attention) to its polar opposite, sense. The rival claims of these two, sense and intellect, are found to have taken the lion's share of all psychological discussion and controversy in ancient days.

On the one hand, a great many authorities, from the earliest times onwards, have slighted the claims of the intellect and have credited all genuine knowledge to the senses and these alone.

But on the other hand, there have been no less numerous and authoritative psychologists who insisted that the senses in themselves tell little or nothing.

However, we have found that neither of the two preceding extreme views were held with much consistency. Interspersed among such passages assigning all merit to one or other of the two claimants, were many passages dividing the credit between them. Moreover, even those who accept this division between the two faculties seem quite unable to agree about the line where the one ends and the other begins.

A further problem raised here has been as to how, if at all, sensory perception enters into the topic of the present section, that of mental " faculties ". We have

met with two replies. In the one, sense faculties are repudiated, and their place is taken by elementary " sensations ". But in the other, faculties are admitted, one being assigned to each different sense.

The chief importance of these disputes is found to lie in certain extremely important practical corollaries. But a consideration of these is deferred until we come to consider the topic of " faculties " as a whole.

CHAPTER IX

OTHER FACULTIES OF KNOWLEDGE

§ 1. Memory. § 2. Imagination. § 3 Various. § 4. Upshot

§ 1. *Memory*

So far, our search for the achievements of psychology has found little more than attempts—and those not very successful—to develop further the great doctrine of Plato, Aristotle, and so many others. This is that man possesses two faculties of knowing, which are Intellect and Sense. We have, indeed, also encountered efforts to establish the two further faculties of "intelligence" and "attention". But these showed themselves to be very equivocal and at bottom to rest on the intellect again. In course of time, however, yet another faculty of knowledge was proposed; Memory. To this we will now turn.

Plato himself had considered this candidate for a place among the faculties, but had rejected it as superfluous. For him, one part of memory was of sensorial nature, and therefore had to be joined up with sensory perception. The other half of memory was that of ideas. But in Plato's theory, man's present knowledge of ideas consists solely in remembering them from a previous superhuman existence. That is to say, his knowing and his remembering of the ideas amount to much the same thing.

In Aristotle's *De Anima*, memory received small notice; it was depicted, after the manner of *Plato*, as

little more than a persistence of the impression made upon the sensory organs. Only a cursory though pregnant remark was added that here,

> " Thought adds on the idea of time."

But in his *De Memoria*, although in some places his treatment of the topic was similar, in others the genuine memory was emphatically distinguished from mere sensory persistence, and was at any rate shown to offer problems of great importance and difficulty. A notable passage is the following :

> " How, then, can any one remember what is not present to one ? One might as well see or hear what is not present."

In general, however, neither Aristotle nor his school appear to have allowed memory to constitute any third power outside sense and intellect, but instead to have surrendered half of it to the one of these and half to the other. The explanation tended to be physiological, not only (as with Plato) in the case of sense, but even in that of thought ; mental processes were supposed to leave behind them certain bodily dispositions to recur.

The first psychologist who admitted memory to the status of a third power on a level with sense and intellect seems to have been Plotinus. Like Aristotle as just quoted, Plotinus was struck by the fact that the mental operation has the appearance and makes the claim of transcending present time. But, unlike Aristotle, he admits the claim to be legitimate ; and he concludes that in remembering we actually do reach out of the present back into the past.

> " The psyche ", he writes, " perceives things which it does not possess."

Such transcendence he explains in the same way as he did that which occurs in the case of universal judgments ; the individual consciousness, he seems to hold, is

in communion with the cosmical consciousness. Among those who accepted this view was Avicenna. Augustine, however, gives a most important new explanation. Instead of the mind perceiving things which it no longer possesses, it really never loses possession of them; when past experiences seem to have been forgotten, they are in truth only lying hidden in subconsciousness. But afterwards among the Schoolmen such notions found little support. Instead there was a return to the less romantic views of Aristotle.

In later times, these divergent doctrines as to the basis of memory continued to compete. Most authorities have confidently, not to say dogmatically, followed the physiological tendencies of Aristotle and the Schoolmen. A few, however, as Leibniz and Hamilton, have developed theories more akin to the spiritual aspirations of Plotinus and Augustine. And even the most physiologically as also the most soberly minded authors incline to marvel at the paradox of a mind knowing at one moment what has happened at another. Reid, as is well known, declared that memory gives to us

> " an immediate knowledge of things past."

This was attacked by Hamilton and others as being self-contradictory; and yet Hamilton himself wrote:

> " From the moment, then, that we seek aught in our memory, we declare, by that very act, that we have not altogether forgotten it; we still hold of it, as it were, a part, and by this part, which we hold, we seek that which we do not hold. . . . It is passing marvellous."

Scarcely less enthusiastic are certain passages bearing on the point by James:

> " If I think of it (an armchair) today as the same armchair which I looked at yesterday, it is obvious that the very conception of it as the same is an additional complication to the thought."

With scorn, therefore, he rejects

> " the ordinary psychology which constantly talks as if the having over again of the same ' idea ' were not only a necessary but a sufficient condition for meaning the same thing twice."

The mystery of all this is so great, he finds, that

> " introspective psychology must here throw up the sponge."

However, the divergencies of view on such problems as these concern not so much the act of remembering as rather its explanation. When talking of the act itself, everyone, even the plain man, seems to mean and always to have meant much the same thing. Of the equivocation besetting " intelligence ", or even " attention ", the term " memory " is reasonably free.

Less harmonious has been the teaching of psychologists about the place of memory in the theory of faculties. A great many authorities, indeed, have followed Plotinus and Augustine in taking it to constitute one whole faculty. Among names that may be cited are those of Huarte, Bacon, Bossuet, D'Alembert, and Gioja.

But others, as Bergson, have outbid even the old Greeks, splitting it up into two widely different parts, a lower and a higher, the former being akin to mere habit. He compares learning a lesson " by heart " with reading it once only.

> " The remembrance of the lesson, in so far as learnt by heart, has *all* the characters of a habit. As habit, it is acquired by the repetition of one and the same effort. As habit, it demands a decomposition first and then a recomposition of the total action. As every habitual exercise of the body, lastly, it is stored up in a mechanism which in its entirety is set in motion by an initial impulse, in a closed system of automatic movements which succeed each other in the same order and occupy the same time.
>
> " On the contrary, the remembrance of this or that

particular reading, the second or the third for example, has *none* of the characters of habit. The image of it is necessarily impressed in memory at the first experience, since the other readings are by very definition different remembrances. It is like an event in my life; it has as essence the carrying of a date, and consequently of not repeating itself."

Yet other psychologists would carry the dissection further still, claiming a separate faculty for each class of things as "names", "faces", "numbers", "music", and so forth.

The common sense of the matter is, as usual, vague and unstable. Sometimes it takes memory to constitute one single faculty; at other times, an indefinitely large number.

§ 2. *Imagination*

Yet another power has often been regarded as co-ordinate with those which we have been considering. To it has usually been given some such name as "invention", "combination", "originality", but most of all "imagination". However, this last term, far from being definite like "memory", is no less equivocal than "intelligence". At first it (or rather its Latin and Greek synonyms, *imaginatio*, *φαντασία*) denoted those faint sensory revivals which are commonly called "images". But since these latter were generally believed to constitute the sole means by which sensory percepts could be remembered, the meaning of the word "imagination" was expanded so as to be involved in all sensory memory; this much would appear to have been already done by Aristotle.

Through a further expansion of meaning—which appears to have been made almost at the same time—the word came to signify any thought of an absent object

(whether reminiscent or not). In this sense, perhaps, Boethius writes :

> " Imagination judges the figure alone without the material."

Later on, yet another equivocality was introduced, this time not so much by the professedly psychological writings as by popular usage ; the word was taken to signify any ideation characterized by *novelty*. Thus its meaning, after the previous large expansion, now underwent a contraction ; it no longer included the apprehension of all absent objects, but only of such as had not been cognized before. In this way it arrived at quite reversing its earlier meaning, that of remembrance. An illustration is furnished by the well-known satire of Sheridan :

> " The Right Honourable gentleman is indebted to his memory for his jests, and to his imagination for his facts."

The climax was reached when things were called " imaginary ", not because they are depicted in sensory images, but because such depiction is impossible ! An instance is the square root of minus one.

Apart from all this main course of wandering, the word " imagination " has enjoyed many briefer divagations. At times it has ascended to being a special characteristic of genius. At other times it has sunk almost to implying untruthfulness. As a more exceptional case, it has meant any element in thought, or even in sensory perception, which does not belong to the object really, but is a subjective addition. Fortlage, for example, ascribed to it (*Einbildungskraft*) a man's distaste for pink cheeks when he knows them to be painted, or his liking for a rough voice when it belongs to a friend. But the boldest of all excursions was that of Kant, when he declared the imagination (" primary ") to be a transcendental power which interposes itself between

sensation and understanding, and thus alone renders sensory perception possible.

Now, out of all these confusingly competing significations of the word, the popular one appears to have had the greatest success. When imagination has been taken as constituting a basal cognitive power, this has generally been in the sense of ability to create novel ideas.

At the present day, the strife still continues as to whether the faculty of imagination ought to be conjoined with that of memory. But, as we have seen, there has been added a further and more acute source of trouble. Should imagination, or should it not, be included in "intelligence"? There remains, however, one situation wherein harmony is restored. When sufficiently heated with enthusiasm for art or for genius, almost all writers alike—regardless of how they have analysed it in colder blood—seem liable to treat "creative imagination" as a faculty that stands by itself.

§ 3. *Various*

The four alleged faculties at which we have now arrived, Sense, Intellect, Memory, and Imagination, present a certain appearance of finality. Sense tells us what is happening now. Memory, what has happened before. Intellect, what happens universally. Imagination, what might be conceived to happen.

But from time to time there have been what looked like attempts to set up other faculties over and above these big four. Something of this additional nature was the wonderful "*common sense*" proposed by Aristotle. This phrase did not here mean anything like what it usually does (and does elsewhere in this book). "Common" did not signify the fact of being shared by most persons, but by different kinds of sensory perception (visual, tactile, and so forth). Aristotle follows Plato in pointing

out that these different kinds of perception, besides each having special characters of its own (colour, pressure, and so forth), possess also some characters in common; as those of position and size. Consequently, he argues, there must exist not only the special senses, but also a common sense. Having thus got his "common sense", he proceeds to work it hard. He adds to its functions that of providing sensory images, since this is a sequel common to all the senses. Then he lays upon it the responsibility for making comparisons of different senses with one another, since this feat clearly could not be done by any single one of them. Finally, he entrusts to it a much more fateful charge, the consciousness of all sensory experience as such; since this consciousness, he said, was an accompaniment common to experiences of all kinds. Another interesting power set up by the ancients was that of "forming an opinion". This played a great part in the psychology of Plato, and was unhesitatingly adopted by Aristotle.

Subsequently, in the Middle Ages, we find the doctrine of four "interior powers", which consist of the common sense, together with the memorative, the imaginative, and the "estimative" powers. The last named was taken to represent the highest grade of knowing that is attainable by brute beasts. It therefore affords interesting comparisons with the more modern conception of "instinct".

Passing out of the Middle Ages into the widely different atmosphere of the Renaissance, we come upon an eventful new power, the "*apperception*" of Leibniz. This was forthwith taken to have a divided duty. It conferred, on the one hand, clear perception, and on the other hand, inward observation. For the former of these functions, it seems to have been beholden to the teaching of the Stoics; whilst the latter of them is evidently a borrowing from the above-mentioned "common sense".

But after this comparatively moderate beginning, the power of apperception soon started on a career of adventure. With Kant, it took upon itself no smaller task than that of endowing the mind with unity. With Herbart, it performed the scarcely less wonderful feat of converting subjective experience into objective. With Lazarus, it descends to the simple role of acquired reaction. In the hands of Steinthal, it becomes the interaction between presentations. Whilst Wundt develops it into voluntary clarification, distinction, and relation. These are some of the chief meanings that have been attached to the word. More often, perhaps, it has been employed with little or none.

Yet another faculty that has attained to great celebrity is that of language. This appears to have happened already with the Stoics. Among comparatively modern authors who have followed in such lines may be quoted especially Sulzer, Jouffroy, Lazarus, and Steinthal. And at the present day, the existence and nature of such a power has become an acute problem in connection with mental tests.

Not only the kinds but also the number of the asserted independent faculties have largely varied. Among the writers that were most generous with them may be mentioned Stewart, who admitted nine: consciousness, perception, attention, conception, abstraction, association of ideas, memory, imagination, judgment or reasoning.

But greater fame has been won by the twenty-seven faculties entering into phrenology. The domain of knowledge supplied thirteen. These, moreover, were remarkably original. Unlike all others, they were no longer distinguished by difference of mental acts, but solely by that of mental objects. Accordingly, the authors demand separate faculties to deal respectively with the following characters: individuality, form, size, weight, colouring, locality, number, order, eventu-

ality, time, tune, and language.

However, multiplicity of more or less fanciful faculties is no monopoly of the present day. Vives in the Middle Ages postulated those of consideration, memory, discourse, judgment, and contemplation. Still earlier, Proclus demanded five different orders of faculties: the external senses; that which shows the connection of mind with body; that which rectifies opinions; that which frees the soul from what is debasing; and that which makes it sympathize with men and angels.

Beside all these faculties or powers that have exercised widespread influence, a far greater number—especially in modern connection with mental tests—have started up, and, as quickly, died down. Specimens are the following alleged faculties or abilities: to "analyse"; to "synthesize"; to "integrate"; to "build up complexes"; to "discriminate essentials"; to "exert self-criticism"; to "treat with logical keenness"; to "plan with foresight"; to "hold in mind the conditions of a problem"; to "think quickly and selectively"; to "make adaptation with the object of attaining a desired end"; to "re-arrange a bit of mental content in a new and prescribed way"; etc. etc. Coined to meet special emergencies, this skimble-skamble stuff is forthwith forgotten again even by its own authors.

§ 4. *Upshot*

In addition to intellect with its kinsmen "intelligence" and "attention", we have in this chapter found a large number of further alleged faculties of knowledge. But in general, the determination of these has been fitful, contradictory, and unprogressive. By far the most often advocated have been those of memory and imagination. Of these the former, though not the latter, has been conceived definitely enough for scientific discussion.

In all cases alike, however, we encounter the same fundamental problem as before. Which, if any, of the mental activities at issue does really make good its claim to constitute a faculty in the "oligarchic" sense of a single potentiality governing a multitude of manifestations? (see Chapter V, p. 118).

CHAPTER X

"ORECTIC" FACULTIES

§ 1. Common Sense. § 2. "Charioteer" of Plato. § 3. "Orexis" of Aristotle. § 4. "Appetites" of Aquinas. § 5 Case of "Feeling". § 6. Ends Desired. § 7. Emotions. § 8. Upshot.

§ 1. *Common Sense*

So far, we have mainly been concerned with the attempts of psychological science to deal with what is commonly and conveniently summed up under the rather technical name of "cognition" (p. 173 below). It comprehends all activities appertaining to knowledge; as perceiving, thinking, conceiving, judging, understanding, remembering, reasoning, imagining, believing, and the like. But certainly the manifestations of the psyche or mind include much else. They take in also such things as wish, emotion, effort, anger, shame, joy, hunger, thirst, lust, impulse, motive, resolution, decision, will, and so forth in immense number and variety. What has psychological science done for these?

At any rate, it cannot be credited with having discovered their existence. Terms more or less equivalent to those just quoted appear to have been in common usage long before the days of Plato. They abound, for instance, in the works of Homer; and, moreover, they were already treated by him for his purposes in such a masterly way as to leave doubts whether we could do much better ourselves. In the portrayal of human motives and feelings, the psychologist and philosophers

had not a little to learn from the poets, the orators, perhaps even the fishwives.

How science did supervene was not in amassing, or even in refining, psychological observations, but rather —here as elsewhere—in interpreting and organizing these. And the earliest attempts to make this push beyond the confines of common sense were once more supplied by the doctrine of powers or faculties; namely, that of a few potentialities each having numerous actualizations (see Chapter V, pp. 107-8).

To modern ears such a usage of words may sound a little strange; as, for instance, when the Schoolmen talk of "the power" to desire good, or the "faculty" of doing so. But if we go behind the words to the doctrine which they are intended to express, then this would seem to be just as applicable to desire, etc., as to cognition.

And such a theory, if carried through with tolerable precision, would indeed seem to be a genuinely scientific achievement.

In the following pages of this chapter a brief account will be given of the more important endeavours that have been made in this direction.

§ 2. *"Charioteer" of Plato*

One great attempt at the extension of the faculty doctrine beyond cognition into the realm of desire and so forth has been encountered by us already. Obviously, it was made at the very beginning by Plato himself, when, alongside of the faculty of "learning", he ranged those of "getting angry" and of "coveting pleasure".

Closely akin, but with a stronger tendency towards ethical valuation, was the beautiful passage of the same author, wherein he likened the soul to a charioteer driving two winged horses. The charioteer himself was identified

with the faculty of reason. And this was principally characterized as dealing with abstract ideas (Chapter V, p. 112). Accordingly, the charioteer represented that part of the soul which followed the guidance of such ideas; for instance, that of "the good". Of the horses, one (*θυμός*, irascible) symbolized courage or anger, being metaphorically described as follows:

> "It is in the nobler condition, is in form erect, finely-moulded, high-necked, hook-nosed, white-coloured, black-eyed, a lover of honour, with temperance and modesty, and a companion of true glory, without the whip is driven by word of command and voice only."

The other horse (*ἐπιθυμία*, concupiscible) stood for such pleasures as those of food (*τροφή*) and sex (

> "is crooked, thick-set, clumsily put together, strong-necked, short-throated, flat-faced, black-coloured, gray-eyed, hot-blooded, a companion of insolence and swaggering, shaggy about the ears, deaf, scarcely obedient to whip and spur together."

So highly does Plato prize this scheme of his, that he advocates a version of it to be imitated in creating the ideal Republic. As the rulers of this he proposes the philosophers, whose characteristic virtue he optimistically assumes to be that of reasonableness. To enforce their mandates, he puts at their disposal the soldiers, since these are taken to excel in courage. Lastly, serving the lower offices needful to the very existence of the state, come the money-getters, whose mainspring lies in the lusts of the flesh. And indeed something not dissimilar to this social order would seem to have been actually realized in the East, with its three castes of priests (Brahman), warriors (Kshatri), and agricultural labourers (Vaisya).

§ 3. *"Orexis" of Aristotle*

This trisection of Plato failed, however, to gain the approval of his greatest disciple and yet most censorious critic, Aristotle. The latter urged that the said three activities could not properly be taken as distinct faculties, since all three had an essential constituent in common. This common element he designated as "orexis". Taken literally, this word signifies a stretching forth, as of the hand. Accordingly, it was anciently rendered as "appetite" (Latin, *appeto*, I seek, attack). But since the latter word has in modern times become especially indicative of physical cravings, it has been generally replaced by "desire". (Latin, *desidero*, I look eagerly towards; German, *Begehren*). But the change is a pity; for in other respects the older word appetite had been far more precise and illuminative.

This "orexis", "appetite", or "desire", then, is added on to the Sense and Intellect, as the third fundamental faculty.

§ 4. *"Appetites" of Aquinas*

But on this matter Aquinas—who, of all authors, treats the faculties with greatest clarity—returns more towards the position of Plato. He drastically distinguishes between appetites intellectual and sensitive. The former he calls the "Will".

> "What is apprehended by the intellect and what is apprehended by sense are generically different; consequently, the intellectual appetite is distinct from the sensitive."

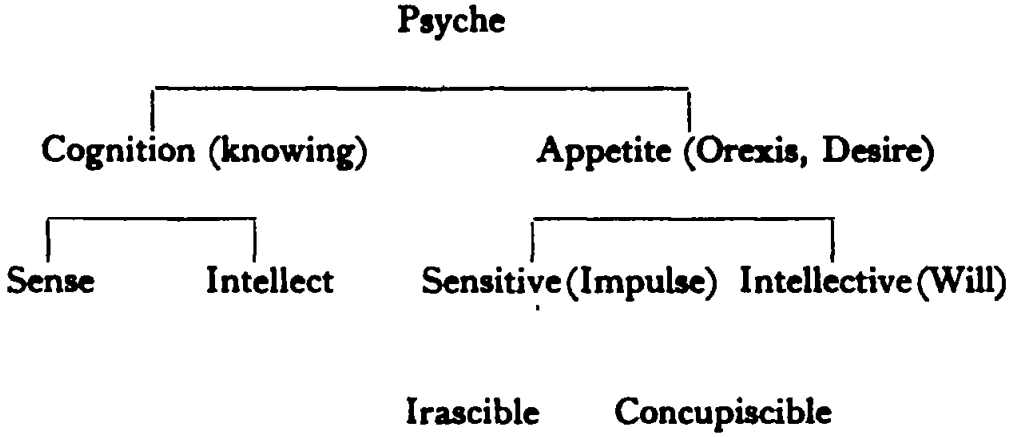
He goes on to consider whether any further power has to be assigned to "Free-will". But he decides in the negative:

> "The Will and the Free-will are not two powers but one."

The sensitive faculty, however, he does proceed to split into two :

> "The sensitive appetite is divided into two powers . . . the irascible and the concupiscible."

Thus his whole scheme becomes as follows :



§ 5. *Case of "Feeling"*

In all the preceding account, the reader acquainted with modern psychology may have noticed one especially conspicuous absence. We have considered the faculties of cognition, and also that of orexis, appetite or desire. But there has been no word about any faculty or power of what is nowadays generally accepted as the third great constituent of mental life, namely, "feeling" or "affection".

But this omission is certainly not due to any ancient lack of interest in the subject. Nor does it even seem attributable to any inferiority of knowledge about it. The reason given by Aquinas why feeling should not be made co-ordinate to appetite was that the former is given with and dependent on the latter. He writes :

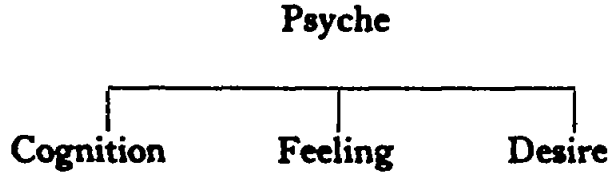
> "The end and the good is the object of the appetitive power. Wherefore, it is evident that fruition (delight) is an act of the appetitive power."

Even subsequent writers who did regard feeling as something separate from and co-ordinate with desire—outstanding names are Augustine, Duns Scotus, Sulzer, and Kant—even these continued to avoid designating it by such terms as faculty or power. Thus Kant divides his whole anthropology into three co-ordinate sections, for knowledge, feeling, and desire respectively; but although he continually mentions both the faculty (*Vermögen*) of knowledge and also that of desire, he never applies such a word to feeling.

The ground for this abstention seems to be that the terms faculty and so forth were originally restricted to what were regarded as " actions " or " activities ", and in the case of feeling this character was not admitted.

Some authors—notably Leibniz and Hamilton—have met the case by reserving the name of " faculty " for the " active " experiences and bestowing on the inactive feelings or affections the title of " capacities ". But others —as Wolff and Fries—did not hesitate to apply the word " faculty " to feeling also.

Anyway, whether or not feeling was actually called by this name, it certainly was conceived as fitting into the faculty-pattern. This consists, as we have seen, in a very few principles underlying very numerous manifestations (Chapter V). Accordingly, the scheme here becomes triform again :



Throughout history, just as there has been much difference of opinion as to whether sense and intellect constitute one faculty or two, so also there has been a see-saw on whether feeling and desire are basally the same (Aristotle and Aquinas) or separate (Augustine).

But about the division between cognition and orexis there has hardly ever been any doubt.

Under different names and groupings, much the same four—sense, intellect, feeling, and desire—have usually been regarded as fundamental. Bain, for instance, puts "sense" and "intellect" into one of his books, "emotion and will" into the other. Rehmke, despite his claim to depart from the four, really arrives at much the same thing; with him, the Sense and the Intellect become respectively "objective consciousness" and "thinking consciousness", whereas the Emotion and the Will reappear as "states of consciousness" (*zuständliches Bewusstsein*) and "causative consciousness". With Ribot, Feeling and Action are the two fundaments of character; an individual is sensitive or active according as his feeling or his energy predominates. So too in the work of Heymans and Wiersma, emotionality and activity constitute two out of their three basic criteria of character. And before these utterances, much the same had been said by F. Jordan.

§ 6. *Ends Desired*

In another direction, however, the doctrine of faculties offers room for much greater variation. So far, the division has been made according to the *form* of the actions at issue. But instead, it may be according to the *ends* in view. How many and which of these have been regarded as fundamental? For Plato, the sole rational end of all human action is the *good*. He admitted, indeed, that men do in point of fact often pursue other aims. But they only behave in this way, he said, owing to their ignorance or folly. As to the kind of thing that is really good, this he conceived in accordance with his metaphysical doctrine of archetypal ideas; the supreme good was the self-existent idea of goodness.

Aquinas, as often, whilst claiming concordance with Aristotle, goes actually much nearer to Plato. Like the latter, he says that the motive of a man's action, even when seeking pleasure, riches, and so forth, consists really in the good that these things seem to contain; namely, the fulfilment of his own perfection. And when his apprehension of the good follows his unperverted or natural appetite, then it consists solely in the vision of the Divine Essence.

But even in its own day this doctrine was challenged, and with considerable success. The rival of Plato, Aristippus, found a ready hearing when he declared that really all desire—save for some individual perversities—could be traced back exclusively to the pursuit of bodily pleasure. Several centuries later this hedonism, as it has been called, found a still more powerful advocate in Epicurus, who, however, admitted besides the pleasures of the body those also of the soul. Discouraged subsequently by the Stoical philosophy, as also by that of the Patristic and Scholastic schools, hedonism burst anew into flames with the Renaissance; in particular, as this was represented by Hobbes.

And subsequent history has been similar. The acceptance or not of hedonism goes up or down in the world, not indeed by the cogency of any new facts discovered, nor even by that of any new arguments brought forward, but rather by the prestige of the writers who may happen to speak for or against it. Bentham, J. S. Mill, Condillac, Spencer, Helvetius, and Troland pull us towards the doctrine. Shaftesbury, T. H. Green, Kant, and McDougall incline us away from it. And parallel vicissitudes seem to have befallen it in the East also, except that there its ups have been less extensive and its downs more so.

Seeing that the hedonistic view has been so unstable, we need have but little surprise to find that in

large measure it has now given way to the biological solution of the problem. Here, the ultimate desire is directed at the preservation of life. Usually this biological view, being credited to the doctrine of evolution, is dated about the middle of last century. But really it is much older. It goes back at least to the Stoics. The same ultimate motive reappears with Malebranche. But here it was no longer exclusive; instead it was one out of *three* fundamental "inclinations". First came the love of good in general, a goal which Malebranche himself established on a theological basis, but which nevertheless shows a remarkable affinity to the real good of Plato. Second was the inclination which aims at preserving ourselves or our happiness. The third had for objects "those other creatures who are useful to us or those whom we love". These three inclinations, being natural, are essentially good; but still they are able to generate others which are more or less evil. Thus, the desire of the good in general, since it aims at something infinite, is so incommensurate with our finite powers that it is apt to fill us with restless curiosity. Again, the second inclination, or love of ourselves, may easily degenerate into vanity and selfishness. And from the third inclination we become prone to favouritism and flattery.

Something unexpectedly like the faculties of Malebranche has reappeared in modern times with Lloyd Morgan. And partly akin to them has been the quite recent teaching of Freud. For he too introduces both the regard for self and that for others. But in the former (*Ichtriebe*) he disclaims any special interest. And as for the latter, this he finds to be at bottom nothing more than manifestations of "sex", such as the procurement of sexual pleasure, the function of reproduction, the character of the "indecent", as well as sexual tendencies that are perverse or infantile.

So far we have seen various derivations of desire from one or very few, but fundamental, ends; such as goodness, pleasure, self-preservation, and regard for others. But there has been also, especially in modern times, an advocacy of more numerous aims. These latter have been not so much based on theoretical grounds as on actual observation.

One of the earliest instances was the set of "springs of action" enumerated by Bentham. These are explicitly called by him "psychological entities". The list of them runs as follows:

I. Interest of the Palate: including hunger, thirst, etc.
II. Sexual interest: including venereal desire, lustfulness.
III. Interest of Sense: luxuriousness, voluptuousness.
IV. Interest of Purse: frugality, covetousness.
V. Interest of the Sceptre: ambition, despoticalness.
VI. Interest of the Spying-glass: curiosity, inquisitiveness.
VII. Interest of the Closet: servility, abjectness.
VIII. Interest of the Trumpet: conscience, probity, vanity.
IX. Interest of the Altar: piety, superstition, enthusiasm.
X. Interest of the Heart: kindness, patriotism.
XI. Interest of the Gall-bladder: malice, rage, envy.
XII. Interest of the Pillow: laziness, torpidity.
XIII. Interest of Existence: prudence, cautiousness, timidity.

With these it is interesting to compare the "propensities" enumerated by the phrenologists, Gall, Spurzheim, and Combe. These were: amativeness, philoprogenitiveness, concentrativeness, adhesiveness, combativeness,

destructiveness and alimentiveness, secretiveness, acquisitiveness, constructiveness.

At a still more modern date, lists of orectic faculties have been frequently advanced under the title of "instincts". But these too have disclosed much diversity of opinion. Preyer, basing himself upon the most careful examination of some very young children, concluded that "instinctive acts are in man few in number, and, apart from those connected with the sexual passion, difficult to recognize after early youth is past". Whereas James, commenting upon this passage, asserted on the contrary that instincts exist on an enormous scale in the animal kingdom, and that of all mammals none possesses so large an array as man. Then came the authority of McDougall, stating that there are seven major instincts: flight, repulsion, curiosity, pugnacity, self-assertion, self-abasement, and parental instinct; but afterwards four others were elevated by him from minor to major rank, namely, pairing, gregariousness, acquisition, and construction; also the additions were made of "appeal" and laughter; sum-total, thirteen. Thorndike, however, arrived at the following ten: sensitivities; attention; gross bodily control; food-getting and habitation; fear, flight, and anger; human intercourse; satisfaction and discomfort; minor bodily movements and cerebral connections; emotions and their expressions; consciousness, learning and remembering. But A. C. Garnett enumerates sixteen, more resembling those of McDougall, as follows: nutrition, wandering, hunting, acquisition, escape, repulsion, curiosity, construction, pugnacious conduct, sex, parental behaviour, appeal (in the child to his parents), herd instinct, subjection, domination, and display.

Yet another author, Drever, offers us twenty-six "tendencies" that are definite, besides a large group of them that are left indefinite.

Widely unlike is the influential doctrine set forth by

Spranger in Germany. According to him there are six fundamental values with corresponding tendencies, desires, or motives. These objects of desire are respectively: knowledge ("theoretical"), utility ("economical"), art ("aesthetic"), sympathy ("social"), will to power ("Machtmensch"), and religion.

A kindred and well-received doctrine is the recent one of Klages. This author has evolved a "System of Driving Forces", which are respectively "spiritual", "personal", and "sensuous". Each of these three again is further partitioned. Thus, under "spiritual" comes on the one hand "self-devotion" and on the other "self-assertion". The former breaks up yet again into "thirst for truth", "love of beauty", and "love of justice". And so on.

Throughout all these instances, from Plato onwards, the use of such terms as "faculties", "capacities", or "inclinations" has been extremely fluctuating. But everywhere we find the same essential feature: multitudinous actual experiences derived from very few principles or powers (see Chapter V).

§ 7. *Emotions*

From all these advocated principles of desire, let us pass to those of "emotion".

A great deal about these, under the name of *πάθη*, was already written by Aristotle. But very little of it came into his formal treatise on psychology. Instead, it was mostly given in his *Nicomachean Ethics*; and not then very systematically, not so as to make clear how it all fits into his more precise work.

However, nothing could be more systematic and precise than the treatment of the emotions, then called "passions" (*passiones*), by Aquinas. Of these he postulates eleven: love and hatred, liking and dislike, joy and

sadness, hope and despair, fear and daring, and anger (which has no contrary passion). But of these he takes only four to be fundamental, namely, joy, sadness, hope, and fear. Here, in this elaborate combing-out of the passions, together with the precise reasoning with which it is supported step by step, one is tempted to believe in a great and secure advance beyond mere common sense.

In point of fact, however, when Scholasticism went out of power and the Renaissance came in, it was all set at naught. Descartes writes contemptuously:

> "What the ancients have taught (about the passions) is so little and for the most part so incredible that . . . I shall be obliged to write here as if I was treating a subject which no one had ever touched before me."

But after these big words, the actual results were less revolutionary than might have been expected. He arrives at reducing all passions to six primitive ones: wonder (*admiration*), love, hate, desire, joy, and sorrow.

His eminent follower and disciple Malebranche, no less contemptuous of the preceding Scholasticism, arrives at the same six primary passions as Descartes had reached.

In modern times, the masterly analysis of McDougall gives us no less than fourteen primary, emotions, as follows: Fear, anger, disgust, tender emotion, distress, lust, curiosity, subjection, elation, loneliness, appetite, ownership, creativeness, and amusement. Whereas the contemporary outstanding work of Shand harks back to six only: fear, anger, disgust, curiosity, joy, and sorrow. Not very far removed, it will be seen, from the old despised analysis of Aquinas.

§ 8. *Upshot*

This chapter shows that in the case of the orectic sphere of the psyche, as in that of the cognitive sphere,

the earliest attempt at scientific theory consisted in reducing the countless actual activities to a very small number of underlying separate principles, named "faculties", "powers", or capacities. Subsequently, under other designations, such as those of temperaments and traits, many other attempts have been made at analogous reductions. In general, the structure attributed to the psyche is "oligarchic" (see Chapter V, p. 108).

Such an organization of the facts, if successful, would no doubt constitute a great scientific advance. But the question as to whether and how far such success has really been achieved must be reserved for the following chapter.

For the moment we may note at least one fact that seems inauspicious. The proposed reductions have so far been singularly complex, shifting, conflicting, and yet unprogressive.

CHAPTER XI

FACULTIES OR CHAOS?

§ 1. Voices in Opposition. § 2. Inconsistency of Opponents. § 3. Faculties and Common Sense. § 4. Hypothesis of "Mannikins". § 5 Alleged Violation of Psychic Unity. § 6. Assumed Concomitance. § 7. Claim to Finality. § 8. Upshot.

§ 1. *Voices in Opposition*

Since the doctrine of faculties has been conceived on such diverse and even conflicting lines, it may not unnaturally be regarded at least with suspicion. And indeed we have already encountered some strong antagonism to it in certain particular cases. For instance, the faculty of intellect was contemptuously rejected by Aristippus, for the reason that no such thing can be actually observed. Again, the claims of "intelligence" to constitute a faculty measurable by a single value were challenged on the ground that it includes abilities in large variety (Chapter VI).

However, in addition to all such attacks on any particular faculty, or faculties, there has been emphatic and even violent opposition to the theory of faculties in general. Demur has been made to the whole notion of deriving the endlessly numerous and varied mental experiences of the psyche from a small number of hidden principles.

Even in ancient times, strong objection was taken by Aristotle to the view—which possibly he attributed to Plato—that the psyche possesses "parts". The

direction of his criticism, however, was not so much against the bare fact of partitioning as rather against this being done in such wise that the same constituent (ὄρεξις) appears in each of them. (*De Anima*, pp. 173-175.)

Elsewhere, Aristotle himself implies that the word " part " is admissible, so long as it is taken in an abstract sense and is not, as by Plato, made to involve separate bodily localization. But even on this last point, it seems questionable whether the view of Plato differed basally from the modern cerebral localization, which assigns to hearing a seat in a certain region of the brain ; to seeing one in another region; and so forth. Indeed, here the relation of Plato to Aristotle appears to have been not unlike that in modern times of Flourens to Broca. In general, the ancient writers did without hesitation or contradiction designate one and the same mental division by the different terms then current, " parts ", " powers ", " forms ", or " principles ". The change of term from one occasion to another seems usually to have implied little more than a shift of the point of emphasis.

Nowadays, on the contrary, the doctrine of " faculties ", as it is at present usually termed, has been singled out for extraordinarily fierce attacks. It is declared to have been a veritable incubus upon psychology from the earliest times. Contrariwise, emancipation from it is held up as the foremost achievement of the present day.

But at any rate this claim of the critics to be so very modern can scarcely be sustained. The bitterest attacks upon the faculties go back at least as far as Malebranche, who saw in them an opportunity for censuring his chronic foes, the Aristotelian Schoolmen. Locke followed suit by making them the butt for his keenest satire. However, none of these early attacks succeeded in damaging the faculties seriously. Very different was the blow dealt to them in comparatively modern times by Herbart. This distinguished philosopher and psycho-

logist, who, as we have seen (p. 89), succeeded Kant in the professorial chair at Königsberg, manifested his independence of his predecessor by being in every possible matter his most irreconcilable opponent. And on no point was his antagonism more ardent than on that of the "faculties". Very soon he gained a large number of disciples, including such eminent men as Drobisch, Waitz, and Volkmann; even Beneke may be partly included. All vied with one another in invective, both against the faculties in general, and against Wolff and Fries in particular, who were now regarded as the facultists of deepest dye (the Schoolmen having by this time been generally forgotten). Kant was sometimes, though not always, treated more leniently, out of respect for his services to philosophy; he was looked on as having been led astray by the arch-offender, Wolff. Nowadays the opposition to the faculties has even intensified. But it has changed its tactics. It no longer assails them with definite criticisms, but takes their failure for granted. It mentions them chiefly to illustrate the backward state of our psychological forefathers as compared with ourselves.

On the whole, then, we can scarcely disagree with C. A. Hart when he declares about this doctrine of faculties that

> "there have been few psychologists or educators who have not taken a fling at its supposed absurdities."

§ 2. *Inconsistency of Opponents*

Against all this vehemence of the attacking party, however, may be set some curious inconsistencies on their part. They themselves very often introduce what are essentially faculties. Instances have been filling all the six previous chapters. For although usually other

terms are employed, such as "abilities", "capacities", "instincts", and "temperaments", yet in essentials, as we have seen, these and the faculties stand on the same footing.

Moreover, the precise term generally used by the acknowledged originators and leaders of the faculty doctrine, namely psychic "powers" (*δυνάμεις, potentiae*), continues to be employed by almost all writers. Indeed, even the word "faculty" itself is still used by the very writers who elsewhere most strongly repudiate such a thing. Sully, for example, writes that

> "the hypothesis of faculty . . . must be regarded as productive of much error in psychology",

and yet he himself alleges "faculties" over and over again.

Evidently, to say the least of it, the situation is in need of being cleared up.

§ 3. *Faculties and Common Sense*

Here as elsewhere, the position attained by scientific psychology may be estimated by comparison with its starting point in common sense.

In certain aspects, at any rate, no essential progress can be noted. The reduction of multitudinous actual events to a single underlying principle is just the favourite procedure of the plain man himself. He attributes anyone's act of remembering to his having a good memory. Indeed, he freely employs the very words here at issue; he ascribes, for instance, all a person's acts of concentrated attention to his one "power", "capacity" or even "faculty" of attending.

So far, then, the doctrine of powers or faculties makes no advance beyond common sense. And just this fact is sometimes said to be that which has brought the theory into most discredit:

". . . a charge running through much of the discussion, often more by implication than by actual expression, is that faculty psychology has been simply the rationalization of a common-sense view of the mind's activity as the man in the street might understand it. It is, therefore, unscientific and 'naïve'. It is readily grasped by ordinary minds. This is a charge not so easy to meet."

§ 4. *Hypothesis of "Mannikins"*

However, the charges most frequently and emphatically brought against the faculties, is not that they agree with common sense, but that they go beyond it. The accusation is that they have been wantonly conceived as so many real active substances, agents or even "mannikins". In this sense Locke wrote as follows:

> "If it be reasonable to suppose and talk of faculties as distinct beings, that can act (as we do when we say the will orders, and the will is free), it is fit that we should make a speaking faculty, by which these actions are produced. . . . We may as properly say, that it is the singing faculty sings, and the dancing faculty dances, as that the will chooses, or that the understanding conceives."

Herbart chimed in. By the faculties, he asserts,

> "Psychology is completely turned into a mythology."

But as a set-off against this objection that the faculties mean too much is the reverse complaint that they mean too little. Such a reproach found already expression in the well-known witticism of Molière, with reference, however, not to mind but to body, and about "virtue" not "faculty". To the question why opium causes sleep, he replies that it has "dormitive virtue".

Soon afterwards Malebranche writes with more open scorn:

> "One is no whit the wiser than before on hearing them (the Aristotelians) say that fire dissolves metals because it has the faculty (*faculté*) of dissolving."

And many years later, the same reproach that the term faculty, whilst pretending to explain, is in truth "wholly insignificant and unintelligible", was revived by Hume, who often gets the credit of having originated it.

So too Herbart declares that the faculties counterfeit an explanation by a mere name. Despite their pretension, says his disciple, Volkmann, they signify neither the actual psychic process nor the underlying psychic substance, and therefore can be nothing but a word devoid of meaning. To invest the psyche with the faculty of thinking was proclaimed by Erdmann to be no less absurd than it would be to invest coffee with "the faculty of being drunk".

In truth, however, all this sarcasm against the doctrine would appear to be unwarranted. When the faculties were represented in terms that suggest agents, this would seem to have really meant nothing more than the personification that constitutes one of the most ordinary figures of speech. As for the opposite charge of being meaningless, this is no more true of "faculties" than it is of such universally accepted terms as "dispositions", "properties", and "functions". All these words indicate that some single abiding cause is needed to explain the many occasional actual manifestations (see Chapter V, p. 112). The mind has the power of thought, in the same sense that chlorine has the property of univalence, or oxygen that of melting at $-227°$. In fact, the term "property" was sometimes actually used by the Schoolmen, and again by others subsequently.

Nor are matters at all different with the particular word "faculty". For this is only a rendering of the Latin *facultas*, which was an abbreviation of *facilitas*, and therefore sprang originally from the extremely modest concept of bare facility. Throughout its ordinary classical usage, it still retained the same meaning at

bottom; it was usually translated as the mere possibility of, or opportunity for, the event in question; and even when introducing it into psychology, Cicero still defines its meaning in terms of the original *facilis*. Vico defines it similarly in the eighteenth century, and Rosmini in the nineteenth. Wolff takes pains to remark that it includes passive processes as well as active ones. Aristotle had done the same. Not until quite modern times did this word "faculty" become habitually invested with the further connotation of activity.

On the whole, then, the common accusations brought against the faculties that they are superfluous mannikins, or that they are devoid of meaning, would seem alike to have scant foundation. Possibly they have been uttered by historians who wrote more than they read.

§ 5. *Alleged Violation of Psychic Unity*

Far graver would seem to be another charge that has been brought against the notion of faculties; namely, on account of their characteristic feature that each is divided from all the others. Such a division, it has been protested, would violate the most essential character of the mind as a whole, its *unity*. Drobisch, for example, wrote as follows:

> "The laws of action of the faculties remain indefinite . . . the relation of their multitude and manifoldness to the unity of the soul remains an unsolved problem."

Now the term "unity" might be taken to have many different implications. But in general, the accusation would seem to be singularly undeserved. The facultists appear to have known, and even cared, much more about the unity of the soul than ever their opponents did. Plato, as we saw (Chapter V), approached this matter with the utmost diffidence. Aristotle emphatically stated that what he calls the different "parts" of the psyche are

not separable in reality, but only in abstraction. Augustine likened the unity connecting the faculties to that of the Holy Trinity. The Arabs, although pushing the faculty doctrine to its extreme, were nevertheless so convinced of the unity of the human cognitive power, that they put this forward as their chief argument for the unity of the psyche as a whole. Nor has this been otherwise in later times. Wolff insists that all the faculties refer, at bottom, to one and the same thing. Fries himself writes :

> " Different as are the single manifestations of our life, they are nevertheless only parts of the intensive magnitude of our life unity."

A similar view is expressed by Kant.

However, the division of the psyche into separate faculties has also been impeached on a less lofty reason than that of violating a person's life-unity. Instead, the separateness has been merely taken in the sense of causal independence. And this has been said to conflict with the obvious fact that all mental operations, traits, and so forth, are mutually and intimately co-operative. Suppose, for instance, that someone is telling a story; will not in such case his memory, his imagination and his intellect interact with one another? Hence it is argued, the doctrine of different independent faculties must necessarily be absurd.

But here again, up to a certain point at any rate, the charge against the doctrine of faculties would appear to be a gross misrepresentation. The faculties were *not* depicted by their advocates as inert towards each other, but on the contrary as in active interplay.

§ 6. *Assumed Concomitance*

Very different and for our present purposes incomparably more important is another charge that has been

brought against the doctrine of faculties. Here again a question of "unity" is involved, but in quite a different manner (the various grounds for bestowing this title will be considered in Chapter XXIII). At the present moment we are concerned with the question as to whether a faculty possesses unity of *function*, in the sense that all the multitudinous manifestations of a single faculty are interlocked.

Now the assumption of such concomitance it is that has excited the most vehement and menacing of all opposition. The manifold activities that had been collected into a single faculty did *not*, the critics declared, function in any such mutual dependence. Instead, according to them, each particular kind of mental activity is independent of the others and ought to be considered separately. Thus Herbart wrote:

> "Memory and imagination agree in that their superior strength is usually limited in every man to particular classes of objects. Whoever wished to acquire geometrical imagination would in vain exercise himself in the so-called art of poetry, and he who easily remembers the technical expressions of a science that interests him often has a bad memory for novelties of the town."

The case of lunatics was also cited. These, it was said, frequently show their imagination to be diseased in respect of some "fixed idea" whilst retaining

> "a very healthy activity, indeed, often the exaltation of genius, for everything not concerned with the fixed idea. . . . The marvel of all these things vanishes on discarding the hypothesis of 'soul-faculties.'"

Herewith we reach the very antithesis of the doctrine of faculties; every different mental process now stands for itself; we pass from the "oligarchic" doctrine of a few reigning principles to the "anarchy" of a disordered multitude of particular cases.

Now, we may well question whether the impeached doctrine that each faculty operates as a unitary whole was really ever advocated by those authors who were chiefly responsible for the faculties. With respect to the transfer of training, concern about this has naturally enough been shown not so much by psychologists at all as by pedagogues. And with regard to the coexistence of abilities, even this in point of fact appears to have been comparatively seldom assumed in former times. The ancient thinkers were otherwise preoccupied; they only wanted to know what the psyche is capable of doing; along this line they hoped to approach such problems as the immortality of Man and the nature of God; matters on which we modern scientific psychologists seem to have lost our grip.

What does interest us in supreme degree, however, is just the aforesaid assumption of functional unity. Curiously enough, such an assumption is especially prevalent among those who most declaim against the "faculties"; for they introduce substantially the same doctrine under other names (Chapter V). And this applies, not only to our use of the old classical faculties of "intellect", "memory", etc., but still more so to those which we have, or claim to have, invented in our own times; such are our "intelligence", our "attention", our powers of "discriminating essentials", of "thinking quickly and selectively", and the like. In all these and countless other cases, we moderns are continually using language and doing deeds whose sole possible excuse lies in some assumed functional going together. Drop this, and the scope of all knowledge is reduced to that of particular cases. Generalities disappear; and therewith, science. The whole of the psychology fabricated after this fashion comes clattering down like a house built up of cards.

§ 7. *Claim to Finality*

There remains yet another reproach that can be made against the faculty psychologist. Although perhaps less definite than the objections which we have been considering, it seems none the less serious. On studying without favour or affection the whole typical development of psychology as based on the notion of faculties, it is hard to resist the impression that these have often been treated as if they supplied psychology with its main end and brought it to a full stop. When once any mental operation has been assigned to and swallowed up in its appropriate faculty, the last word is taken to have been said about it.

In particular there is no further need felt for either analysis or synthesis. In this way the determining of the faculties has in good truth seemed to paralyse further inquiry; it has left the science of the psyche more or less stunted and ineffective.

§ 8. *Upshot*

In this chapter we have reviewed the main criticisms of the attempts to construct psychology along the "oligarchic" pattern of "faculties" or "powers". Most of these criticisms—notably, that these faculties have been fantastically regarded as so many substances or agents—would appear to be devoid of foundation.

A more serious charge against the upholders of the doctrine has been that they assumed a faculty to function in mutual dependence; that is to say, they implied that training, heredity, or other influences acting on any of its manifestations affect the remainder in a similar way. As a matter of fact, however, such an assumption was never made by the leading faculty psychologists at all; for the simple reason, that their interests lay elsewhere.

The authors who really have implied some such concomitant functioning are just those modern authors who meticulously ban the word "faculty", but yet indulge in the same concept under other names, such as "ability", "power", or "capacity". By such a precarious assumption, then, all this current psychology must stand or fall. And the odds seem to lie on the latter alternative.

A further grave, though less generally noticed, objection to the doctrine of faculties is that it tends to adopt a tone of finality. Its proponents seem to suppose that, when once the faculties have been enumerated, the work of psychology is done. Further analysis and synthesis are thus fatally shut out.

But if such be the parlous state of the oligarchic doctrine of a few latent faculties, each of which embraces a multitude of manifestations, what has the great rival doctrine offered to us instead? The faculties disappear, and we arrive seemingly at anarchic chaos.

On the whole, then, both the rival doctrines which we have seen in this section would appear to be primitive and crude. They seem more like first guesses than scientific conclusions drawn from all available information.

The knowledge required for science must in the first place show how the psyche is really constituted; it must be descriptive; and such a quest can only be rendered successful by fine enough analysis together with full enough synthesis. And in the second place, inquiry must be made as to how these constituents are functionally *interrelated;* the science must be explanatory.

The history of psychological progress in respect of the constitution of the psyche will form the subject-matter of Part C. That in respect of its function will come in Parts D and E.

PART C

HOW THE PSYCHE IS CONSTITUTED

CHAPTER XII

BASIS OF SENSORY PERCEPTION

§ 1. The Elements and Common Sense. § 2. Perception of Quality and Intensity. § 3. Perception of Space. § 4. Perception of Time. § 5 Perception as a Mosaic. § 6. Sensation as Feeling. § 7. Sensation and Stimulus. § 8 Sense and External Objects. § 9. Upshot.

§ 1. *The Elements and Common Sense*

At this point, accordingly, we commence our account of what psychology has achieved by way of *describing* mental events, reserving its efforts at explaining them for later on.

The description has almost inevitably consisted in picking up the extremely crude products of primitive psychology which were the faculties, and submitting these on the one hand to finer analysis, and on the other to more comprehensive synthesis.

As already mentioned, if the analysis is to be beyond reproach, it must be limited to that of the "ideal", "abstractive", or "intentional" kind (see Chapter IV). But, as we also found, there is no limitation of the starting point. Our studies and descriptions are not bound always to move either analytically from wholes to elements or synthetically from elements to wholes. As a matter of fact, they will generally start from something intermediate, and then work analytically downwards, but synthetically upwards.

Taking analysis in our meaning of ideal dissection, there obviously must be an immense amount of it already implicit in the language of the plain man. Indeed, there is approximately one item for each current word.

These items constitute the primary material which has to be sorted out, to be selected, further analysed, and put together again. Whereabouts in all this procedure shall we begin?

The choice, we suggest, is not a matter of principle, but of convenience. And from the latter standpoint, we can hardly improve on the classical commencement at "Sense".

Here one great line of analysis, obviously familiar to the plain man long before the era of philosophy, is that which is implied in the perception of different particular objects. Of all the mental effects of the stimuli raining in on a man's senses, he picks out for separate consideration or communication certain concrete "objects", such as this dog, or that stone.

But also extremely ancient—though possibly far less so than the kind just mentioned—is the analysis into abstract "attributes." This is involved in the child's very early usage of all such words as "green", "loud", "sweet", and so forth.

Moreover, the extremely important fact was observed by Aristotle, Plato, and probably even before these by Democritus, that the attributes perceived (*τα αἰσθητά*) fall into two classes. The one includes all those which are specific to a single sense (*ἴδια*); as colour is to vision, pitch to sound, and so forth. The other class embraces those attributes which are common to more than one sense (*κοινά*); as such, Aristotle enumerates movement, rest, number, figure, magnitude; sometimes, he even adds "rough", "smooth", "sharp", and "blunt". The most important later addition to these was perhaps "clearness", for which the chief credit may be assigned to Wolff, about two centuries ago.

Other more or less important attempts have been made to enumerate the fundamental categories. Well known is that of Tiedemann:

" extension, intension, protension, and succession."

In modern times, Titchener has given as the four fundamental attributes of sensation :

" quality, intensity, clearness, and duration."

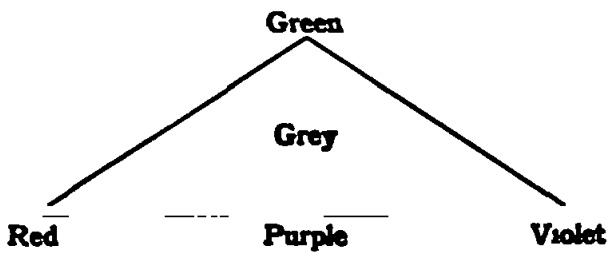
Quite recently, however, the following four perceived attributes have been regarded as fundamental : quality, intensity, space-position, and time-position. For instance, my present percept of the setting sun is obviously enough : red, very bright, located there in front of me, and occurring now. " Clearness " is nothing perceived, but only a way of perceiving.

§ 2. *Perception of Quality and Intensity*

Let us then take these four attributes each in turn : quality, intensity, space-position, time-position. We have to consider what progress has been made about them in two respects ; firstly, in the direction of still further analysis, and secondly, in that of utilizing the analysis for the purpose of synthetic and perspicuous description.

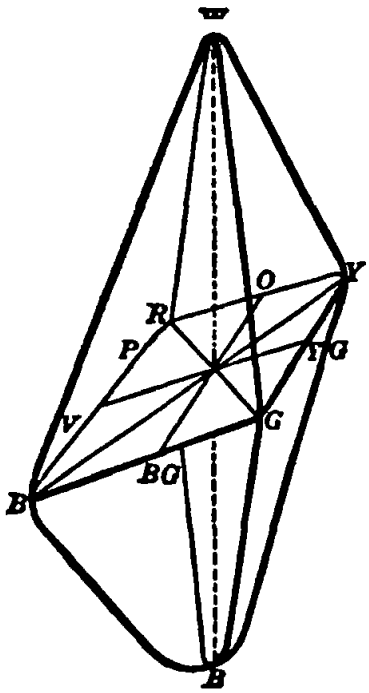
Beginning with quality and intensity, already Theophrastus had given a surprisingly accurate array of the different senses : sight, sound, taste, smell, and touch.

Further progress has been most conspicuous in the case of sight. To some extent, a systematic display of the scope of this sense is furnished by the natural phenomenon of the spectrum ; this, however, suffers from the grave omission of the purples as also of the colours tending towards grey. Remedying these two omissions, we have been supplied by Newton with his celebrated triangle.



Instead of this triangle, Wundt has proposed a circle.

But a far more complete array of the resources of vision may be obtained if these are presented not merely as a plane but as a solid. In this way Titchener gives us the following pyramid, in which every possible chromatic or achromatic variation finds its due place.



On very different lines has developed the analysis and the systematic representation of sound. Here, to begin with, the distinction has been drawn between "noise" and "tone". As regards the latter attribute, this has been further analysed into "pitch" which runs simply from the lowest to the highest that are audible, and "timbre" which admits of indefinitely large variation.

More refractory to analysis and classification has proved to be the sense of smell. Zwaardemaker, however, arrived at the following classification: ethereal (as fruit), aromatic (as spice), fragrant (as flowers), ambrosial (as musk), alliaceous (as onion), empyreumatic (as tar), hircine (as cheese), repulsive (as laudanum), and nauseous (as decaying flesh). Taste, on the other hand, has been said to break up simply into sweet, salt, sour, and bitter. Very simple, also, is the common division of the cutaneous senses into those of pressure, pain, warmth, and cold.

Finally come what may be called the subcutaneous senses, notably, the "kinaesthetic", and "muscular", the "tendinous", and the "articular". In quality, all these would seem closely allied to, if not fundamentally identical with, the cutaneous experiences (especially pressure). A good account of them has been supplied by Titchener and his school.

The preceding general description of the whole scope of sensory quality may be illuminatingly supplemented by counting how many grades are distinguishable. Thus, it has been found that chromatic variation possesses about 200 such grades; smell, about 500; pitch, no less than 10,000; noise, some 600. Distinguishable grades of intensity are in most cases less numerous. Loudness has only about 100. But brightness has some 700. Furthermore, all such determinations have been repeated with many individuals under varying conditions, both normal and abnormal.

In other respects, the sensory analysis has been confined to a number of more special problems which possess correspondingly limited interest. One of these is about the number and nature of overtones in musical notes (a matter that naturally leads on to phonetic analysis). Another has been to decide how far the difference between light and dark is one of quality or of intensity. Again, investigation has been made as to the exact nature of such peculiar sensory characters as lustre, brackishness, and wetness.

§ 3. *Perception of Space*

From the perception of quality and intensity let us turn to that of space-position. To see anything is to see it in some place or other. It has at least the *appearance* of being somewhere. (With the reality, if any, we are not at present concerned.) The same thing is true of what a person feels, hears, or otherwise senses. Such, at least, is the view of the plain man. Can scientific psychologists do better? Many of them have at any rate believed they could, and in a diversity of fashions.

A remarkable adventure of this sort has been one of the many doctrines that pass under the name of "relativity". Here we are told that, although we perceive

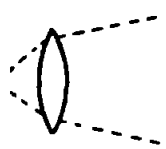
the relations between different positions, yet we do not perceive these positions themselves!

A still bolder divagation from common sense is that of those psychologists who, as Herbart, would argue that the appearance of space is really not one of space at all, but only of a series of qualities; this seems like saying that the appearance of red is not the appearance of red, but that of blue.

If not quite so thrilling, still bold enough was the doctrine put forward by Lotze, that the spatial character of percepts does not indeed consist in their qualitative character, but is in some mysterious way inferred from this. Yet another theoretical enterprise was the doctrine of Ward, that space as perceived possesses "extensity" but not "extension", which is like stating that water has fluidity but is not fluid.

In spite of their attractiveness, however, none of these attempted philosophical reductions of the spatial to the non-spatial appear to have ever enjoyed much following in psychology. None of them, it would seem, have become planks in the platform of any large school.

To be distinguished from all such efforts to analyse spatial appearance in such wise as to eliminate it, however, are those which would do no more than assign to the several senses different degrees of priority. The spatial character of sound is said by many authorities to be not original but only derived from that of sight, or of touch. Again, the relative priority of these last two has been made the topic of endless dispute. But in support of all these more moderate views—unlike the miraculous dogmas mentioned before—there has been much search for definite evidence. As among the finest of these investigations may be cited that of Stratton, who for several days con-



tinuously wore a set of lenses (see diagram, p. 202) that reversed (vertically) the image on the retina. The first effect of this reversal, Stratton tells us, was to make things as seen appear to be in a wholly different place from that in which they were as felt. But this discord between visual and tactual positions gradually disappeared; not that the visual position accommodated itself to the tactual, but rather that the tactual tended to swing into line with the visual. Whether discordant or concordant, however, both visual and tactual percepts continued to manifest their positions throughout; they always appeared to be somewhere; in other words, to have the space-character.

In the case of this character, as in that of quality and intensity, a laborious and fruitful endeavour has been made to estimate the whole scope and variety of the information which it affords. And here again the chief criterion has been the number of appreciable differences. To determine these in the case of cutaneous perception, Weber in the middle of the nineteenth century measured the smallest distance apart at which any two points touching the skin are felt to be separate. He found this distance to vary from 1 mm. at the tip of the tongue to 68 mm. in the middle of the back.

In a later research Marillier and Philippe explored similarly the entire surface of the body (no less than 400 different places on it) and found somewhat smaller distances perceptible. But this diminution was attributed to a difference in the class of subjects used. For all four persons thus minutely examined by these French investigators were female and, moreover, two of them were children.

Subsequently v. Frey, under extremely favourable conditions, obtained distances far smaller still; in fact, a difference of location could be detected between any two "touch spots". And the number of these has been put at no less than half a million. As for the sense of

sight, here it was found that in central vision two stars could be distinguished when no further apart than 30 seconds. Altogether, the number of appreciable differences with visual localization would appear to be even greater than with touch.

§ 4. *Perception of Time*

There remains for our present consideration the perception of time. Even philosophy seems to have found this sphere too tenuous to support great flights of speculation. As in the case of space, indeed, the view has been advanced that everything is purely relative. But after dogmatically asserting or denying this, there appeared to be not much else to say about it. A little more stimulating have been the attempts made to analyse the appearance of time into that of something essentially different. The time character has thus been said to consist of mere change; of shifts of attention; of stages of impression; of movements; of feelings; of associations; and so on. But here, too, general psychological interest has now waned almost to the point of oblivion.

To this modern callousness, however, there has been at least one notable exception. E. R. Clay wrote the following often quoted lines:

> "The present is delusively given as being a time that intervenes between the past and the future. Let it be named the specious present, and let the past, that is given as being the past, be known as the obvious past. All the notes of a bar of a song seem to the listener to be contained in the present. . . . At the instant of the termination of such series, no part of the time measured by them seems to be a past."

This was too good a paradox to be let slip by James. And succeeding psychologists have ever since gone on repeating it, but seriously. The plain man, however,

continues to think that the last note of a bar is heard later than the first one. And actual experiment has gone much beyond this; it has shown that the minimum interval at which any second tone is heard as being noticeably later than the first tone does not exceed 0·0016 of a second.

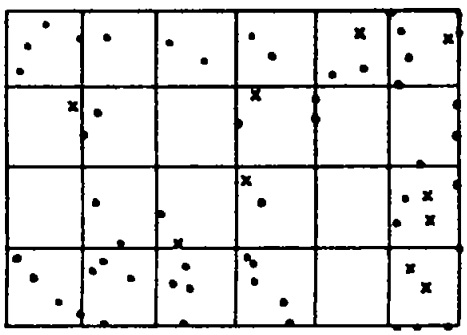
§ 5. *Perception as a Mosaic*

So far, the course of psychology has been straightforward enough. On the one hand, we have found an orderly development—chiefly by way of selection and distribution—of data that in themselves were already long familiar and generally agreed. On the other, we have encountered a number of harum-scarum doctrines (especially about space and time) which have come and gone, and leave not a rack behind.

There remain still to be considered, however, certain questions which have been the occasion of persistent intense controversy. Outstanding is the crusade being at present proclaimed by an eloquent group of psychologists against what they call the "traditional" analysis of sensory perception into a "mosaic" of self-sufficient (*selbständige*) elements or "sensations" analogous to physical atoms. This evidently brings us back to what has been said about analysis at the beginning of this chapter (see also Chapter IV).

In spite, however, of the alleged traditional character of this sort of analysis, there is a difficulty in finding any indubitable instance. It does not seem rightly chargeable even against the extreme doctrines of Hartley and of Herbart. In general, the conception of atoms and that of sensory qualities have been utterly different. Whereas the former are regarded as substances, the latter by general admission appear as attributes; any ten-year-old child can tell us that "atom"

is a substantive, "blue" an adjective. Again, atoms are always conceived as separated by comparatively immense gaps. In the case of sensations, no one has said that there are *necessarily* any intervening gaps at all? Once more, an atom is conceived as eternally one and the same, whereas sensation has, ever since the days of Heraclitus, been famed for its fluidity and instability.



Cold-spots (dots) and warmth-spots (crosses) from Donaldson (*Mind*, 10, 1885)

Setting aside, then, the exaggerations, what degree of "self-sufficiency" has really been claimed for sensation? This may be illustrated by the so-called "touch spots". If a small area of skin is gently explored with a slender bristle, no sensation is felt except at certain points where it suddenly becomes quite distinct, assuming one of four different qualities: those of pressure, pain, warmth, and cold.

An analogous state of affairs is observed or inferred in sensory perception of all kinds. The conclusion drawn is that the stimulation of a single sensory nerve-fibre produces a characteristic sensory percept of maximum simplicity and minimum (apparent) size. And if all these sensitive spots are mapped out, the total appearance is, indeed, that of a mosaic, as shown in the preceding map of Donaldson.

When, however, the different sensory stimulations are not successive but simultaneous, then indeed the result is more complex. Suppose, for example, we play on the piano two notes, first separately, and then together as a chord. Do or do not the two original separate notes reappear in the chord? With reservations, yes. The chord does appear to contain something that is at least very like the original two notes, but now more or less blended

together, and also more or less modified (see p. 97).

On the whole, then, the analysis of *primitive* perception into "sensations" would seem to be not an unreasonable conception, if taken with its proper limitations.

§ 6. *Sensation as Feeling*

Not without kinship to the preceding matter is the curious fact that many psychologists—in particular, both Plato and Aristotle—have regarded sensory perceptions as states of mind or "feelings" (*τὰ παθήματα τὰ αἰσθητά*). But they seem to have arrived at this view not so much by observation as rather by inference. In the manner that the pressure of a seal alters the state of the wax, so too, it was thought, a sensory stimulus must alter the state of the organism stimulated. Further, this state—like the corresponding scholastic *species impressa*—was regarded more physiologically than psychologically.

Such a hypothesis, however, presents interesting points of comparison with some modern experimental facts which do seem to be observable and mental. These have been found under certain special conditions; notably, those of distraction and of relaxation. When either of these conditions was pushed far enough, the sensory qualities no longer seemed to belong to any external object, but instead to be states of the perceiver's own consciousness. Here are some experiences recorded by the present writer—though qualified as fleeting:

> "(*a*) Sight:
> 'Consciousness was a green blur with absolutely no meaning. It *was* the colour.'
> (*b*) Sound:
> 'There seemed to be nothing in consciousness but the sound; consciousness *was* the sound.'"

Subsequently R. Cattell, under the direction of Aveling,

made somewhat similar experiments, employing a much wider range of sensory stimuli. This time special attention was paid to the experience at the moment that it *started*; the "primitive pathic state", as he called it. Under such conditions it was found that

> "Sensations are no longer experienced as over against the self, localised, contemplated and meaningful, but come to fuse with the subjective side of consciousness and constitute the self, so that duality disappears and the whole of consciousness is filled by the 'sensation.'"

What Bichowsky called "pre-sensation" was characterized similarly:

> "It has no spatial or temporal properties—can be felt but not described."

So, too, Dickinson, M. Martin, and G. Bose. The last-named we will quote at some length:

> "Hold a coin between the forefinger and thumb of the right hand. . . . Concentrate your attention on the sensation. *The objective reference will gradually disappear*. . . . Now move your hand round and round. . . . Try to eliminate the kinaesthetic perceptions in connection with the motion of the hand and also the visual imagery of movement. . . . *The illusion of movement of sensation* (which must not be confounded with the sensation of movement) *is now overcome and the perception stands out as something unique*. Continue your introspection and try to eliminate the visual imagery of the hand, etc., and the kinaesthetic sensations arising from different parts of the body. *The subjective localisation of the original perception is now lost* and as the introspection becomes more intense and deeper, *the original sensation loses its attributes of intensity, clearness, duration and quality*. The perception has practically vanished and in its place is left a peculiar something which for want of a better name may be '*pure consciousness*.' It is not the consciousness of *this* or *that* but it may be called a consciousness without an object. The feeling is something queer and indefinable."

To interpret all these experimental results, it seems reasonable to suppose that the conditions were such as to produce sensation at its earliest and most primitive stage. At *that stage* the percept, far from appearing as any mosaic, does not present any object at all. Instead, the experience is that of a subjective state.

Even without the aid of experiment, such a conclusion seems to have been already conjectured by many authors. Lewes, for instance, wrote emphatically as follows :

> " The starting point is always Feeling, and Feeling is the final goal and test. Knowledge begins with indefinite Feeling, which is gradually rendered more and more definite as the chaos is condensed into objects."

§ 7. *Sensation and Stimulus*

Almost all the preceding discussion has been about the fundamental sensory attributes in themselves. Let us go on to the relations between them and the sensory organs. In many cases these matters have led to such unprogressive controversies as that which has been waged between the Young-Helmholtz and the Hering theories of vision. But along other lines, the work has been much more fruitful. In particular, there has been careful determination of sensory limits. Many observations have been made of the just visible red at the lower end of the spectrum and of the just visible violet at the other end. Further observations have concerned the stimuli producing the faintest audible sounds. And analogous work has been done in the case of all the other senses.

Again, there has been much inquiry as to how two or more (see above, p. 206) simultaneous stimulations modify each other's effects ; here are included such cases as colour-mixture, over-tones, and, above all, contrast. Yet another sphere of research has dealt with the way in which sensation is influenced by lapse of time ; here come

in such problems as that of the gradual rise and fall of sensation when the stimulus starts or ceases abruptly; that of sensory attunement and after-sensation; and that of dark-adaptation.

Peculiarly interesting has been the discovery of what has been called the "specific energy" of the nerves. By this is meant that the quality of the sensation elicited by stimulating any nerve-fibre depends essentially on the nature of that fibre, rather than on that of the stimulus.

Incidentally, it may be mentioned here that some recent acutely controversial writings have assailed what they designated as the "traditional constancy hypothesis". By this appears to be meant the doctrine that the mental effect of any particular sensory stimulus is unchanged by any alteration in the rest of the field of consciousness. But the erroneousness of this imputation is disproved by the general acceptance of the influences cited in the preceding paragraph. Quite possibly, indeed, the effect of the rest of the field may in certain cases be very great; but this is only a matter of detail, not of principle.

As to the value of all this investigation pursued by physiological psychology in modern times, it would seem to be comparatively free from the usual objection, namely, that the alleged physiology is wildly speculative. For it is in large measure concerned with the fairly well understood function of the peripheral parts of the nervous system, *not* the still extremely obscure function of the central parts.

Nevertheless it is a significant fact that, whereas in the early days of psychological experiment such psychophysiology constituted the great bulk of almost all psychological text-books, nowadays it is usually almost crowded out of them by other matters which the authors have found to be more important still. Almost alone in giving a detailed, systematic, and comparatively up-to-date account stands the eminent work of Fröbes.

§ 8. *Sense and External Objects*

After seeing how sensory perception is connected with the sensory stimuli, we may look for its relation to the sensory object. But this object may be of three kinds: that of common sense, that of physical science, and that of philosophy. As regards that of common sense, here we meet no difficulty at all; for this object *is* the percept; in other words, the man in the street generally takes material things to be just what they appear to his senses. As regards the philosophical object, this too need not bother us, for the problems about it we hand over to the philosophers.

There remains the object as conceived by ordinary physical science. The relation of this to the sensory experience is extremely interesting. And on it some of the facts we have been recording throw a disquieting light. One such fact is that in its most primitive stage our sensory experience consists merely of our own feelings. If so, it would appear to have nothing in common with the real physical object at all.

Another conclusion pointing in the same way is that, as just seen, the quality of sensation is not determined by the nature of the objective stimulus, but only by the idiosyncrasy of the nerve stimulated.

Furthermore, we meet here this discovery, which seems to have originated with Leucippus, and certainly was prominent with Locke, that the sensory attributes are of two kinds, called sometimes "primary" and "secondary". The former include the characters of space and time, and comprise the whole material of physical science. The secondary attributes include quality and intensity; these are not physical at all, but only mental. Take, for example, the seen quality of an orange. In the mind there is a genuine presentation of yellow. In the physical orange there is really no yellowness at all, but only

the totally different attribute of wave-motion.

Putting all these arguments together—and adding in anticipation the fact of illusions and hallucinations—there is a strong case for believing that the sensory percepts which constitute the world of common sense have little or no resemblance to the world of physical science. Some support is afforded for the long and vehemently contested doctrine of "representationism", in which Arnauld affirmed that we do not see objects immediately, and that the sole immediate object before the mind is the idea. To this extent there may be some truth even in the quaint teaching of Hobbes:

> "The cause of sense, is the external body, or object, which presseth the organ proper to each sense . . . which pressure, by the mediation of the nerves and other strings, membranes of the body, continued inwards to the brain and heart, causeth there a resistance, or *counter-pressure* or endeavour of the heart to deliver itself; which endeavour, because *outward*, seemeth to be some matter without."

We may perhaps be not unsympathetic with the avowal of Bishop Berkeley:

> "The only thing whose existence I deny is that which philosophers call *matter* or *corporeal substance*. And in doing this there is no damage done to the rest of mankind, who, I dare say, will never miss it."

§ 9. *Upshot*

The descriptive psychology recorded in the previous chapter began with the analysis that has been made of sensory perception so as to disclose its basis in a very few fundamental attributes.

We particularly considered the doctrine that these are four in number: quality and intensity together with space-character and time-character. Thence we pro-

ceeded to mark out the whole domain of consciousness which these four collectively supply.

We next considered the much debated question as to how far sensory perceptions are amenable to analysis into elementary " sensations ".

We then examined the evidence that sensory experience, though normally objective, can under definite conditions assume the nature of a bare " state ".

Another topic of inquiry has been the relation of sensory percepts to the sensory stimuli which generate them. On this matter more than any other, we found that scientific psychology has really supplied very extensive information over and above all that lies at the disposal of common sense.

Finally, we looked at the relation between the sensory perception of material objects and these objects as conceived by physical science. According to the available evidence, the two have surprisingly little in common.

CHAPTER XIII

PERCEPTION OF RELATIONS

§ 1. Sensory "Sums". § 2. Comparison § 3. Relations.
§ 4 Form § 5. Case of "Continuity" § 6. Relativism
§ 7. Illustrations. § 8. Upshot

§ 1. *Sensory "Sums"*

Having in the preceding chapter seen the descriptive analysis of sensory perception into its four fundamental attributes—and even, to a certain degree, into ultimate "sensations"—let us proceed to consider the putting of these "parts" together again. What sort of thing has been the synthetic result?

One answer to this question appears to have come to our notice already. It was given by those psychologists to whom all such analysis seemed to be futile. They supposed that, after once breaking up a perception into "sensations", the sole way of putting these together again is by "adding" them into their "sum".

Now such authors never appear to indicate just what the word "sum" is intended by them to mean. But perhaps we shall not go far wrong in taking them to signify that the sensations are added together in the signification of occurring at the same time, and possibly in the same consciousness, but otherwise in complete *disconnection*.

But here once more search fails to disclose any indubitable representatives of such a doctrine.

Perhaps the nearest approach to it was made by Hartley. For he does sometimes write of perception

as if this were exclusively composed of elementary sensations. But even he does not appear to have intended a picture of perception in its ordinary full development. He meant rather a hypothetical primitive perception, something that in ordinary experience was supposed by him to have become thickly overlaid with "associations". Even so, moreover, the component sensations were never taken by him to be merely "added" together, or indeed to be added at all. On the contrary, they were declared to be intimately interrelated, on complex lines following the interrelations of the nerve-fibres.

§ 2. *Comparison*

Setting aside, then, this bugbear doctrine of "sums", the general view of psychologists would seem to have been that sensory perception does contain or involve *more* than the fundamental sensory characters. Of what nature, then, has this surplus been taken to be?

First and foremost there has been said to occur the additional operation of comparison and discrimination. This further constituent of perceptual activity was greatly stressed by both Plato and Aristotle as revealing the existence of a further power, and one of an extraordinary kind. Aristotle expressed himself as follows:

> "Eyesight judges of the white and black, taste of what is sweet and bitter, and so on But furthermore, we discriminate between what is white and what is sweet and between each of the objects of sense in comparison with each other."

Such discrimination, he urged, cannot be explained completely by the two separate powers of eyesight and taste. There must exist some further power to which both sense-perceptions are or may be transmitted.

> "It is just in fact as if I were to perceive the one and you the other; it would then be evident that our two

> perceptions are different from one another; but still it would be necessary to have some one referee to assert the difference."

This third faculty, he goes on to say, must have the wonderful virtue of moving at one and the same time in two opposite directions and yet remaining undivided.

Although afterwards shorn of such intriguing significance, the fact that the mental activities include discrimination continued to be universally maintained, even by the revolutionaries of the Renaissance, for whom Aristotle with all his works and followers were anathema.

Moreover, we find, and with as early a writer as Locke, a fundamental supplement. Aristotle had only indicated the mental power of making comparisons in respect of likeness and difference. Locke cites as another and distinct mental operation the comparing of percepts "in respect of extent, degrees, time, place, or any other circumstance".

But how much in all this treatment of comparison can be credited to scientific psychology, as being an advance beyond the attainments of ordinary common sense? Certainly not the bare feat of analysing out the abstract notion of comparing. For such an analysis would appear to be a very ancient exploit indeed. The proof lies in the prehistoric existence of words to denote comparison in general (*εἰκάζω*, *ὁμοιόω*, *παραβάλλω*). What the said early psychologists do seem to have achieved consists in a rough indication of the respects with which comparison deals (difference, extent, time, etc.), and also in the momentous attempt to use the power of comparison as an approach to the great problem of mental unity.

A new era, however, was introduced by modern psychologists, when these at last equipped themselves with the experimental method. Thenceforward, the operation of comparing became and has remained one of

the favourite topics of research. Many efforts have been made to analyse it in greater detail.

The psychological problem has been set forth as follows by Fröbes :

> " One of the fundamental intellectual performances is the comparison of given objects in some respect. The comparison-judgment 'A' is larger than 'B' . . . is consciously grounded. . . . Consequently there must have been given experiences which make the judgment logically certain or probable What are those experiences ? "

An example of the results obtained has been to discover the frequent usage of " side-comparisons ". Thus in comparing small stretches of time, most persons have been found by Schumann to base their judgment, not directly upon the two durations, but instead on certain feelings of surprise. Again, the comparison of the pitches of two tones was recorded by Whipple to have really not been founded on the sounds at all, but on the different tensions of the vocal muscles.

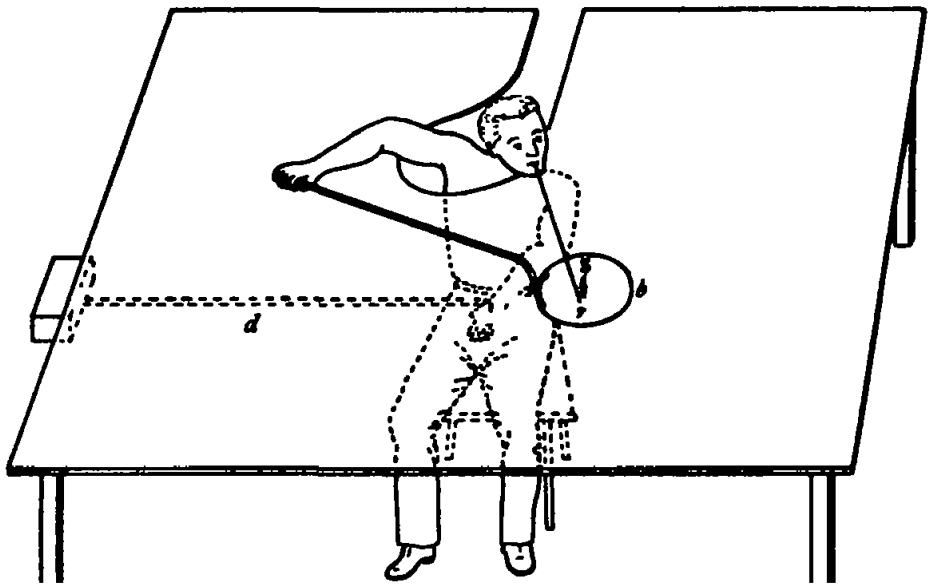
Turning to the more genuine judgments which do derive directly from the tones or other items compared, one result of considerable importance—especially in view of some acute controversies—is that these compared items may be presented to mind either simultaneously or successively.

Besides all such discoveries about comparison in general, various interesting researches have been made on certain comparisons of particular kinds. One is that which is effected between two or more sensed positions in space. An instance is the endeavour to match in position two different senses, visual and tactual, as shown in the following picture.

The subject looks at the reflection (*r*) of the point (*s*) in the mirror (*b*). At the same time, he is made to feel the pressure of the end of the concealed rod (*d*) on the back of his left hand. His task is to adjust the mirror until the

reflected visual position of the point and the tactual position of the end of the rod coincide. In making this adjustment there is usually a large error, as shown in the picture.

Another special kind of comparison is that between positions in time. For example, the well-known " complication pendulum " was so devised as to ring a hidden



bell whilst a visible pendulum passed along a scale. The subject had to judge what point on the scale the pendulum was passing at the moment of the bell ringing.

Many of the results so obtained about the operation of comparing did indubitably go far beyond the scope of unaided common sense. Nevertheless, disappointingly small profit seems to have been derived from them even in matters where it might most have been expected; for instance, in measuring individual differences of power to perceive likeness and difference. Nowadays, the whole topic has fallen out of favour; the more recent text-books —that of Fröbes being a great exception—give to it little if any notice.

§ 3. *Relations*

Intimately connected with this attempted promotion of psychology by way of the study of "comparison" has been the endeavour to push it forward by the aid of the concept of "relation". This is an advance which cannot be reckoned to the most ancient achievements. The classical Greek language, at any rate, appears to have had no word exactly equivalent, although Aristotle did consider—and at length—the less abstract idea of "relatives".

Originally, as can be seen from its structure, the word relation meant no more than the act of bringing back. Thence it came to denote specially the bringing back of information, or the considering of one thing with reference to another. At this point it obviously makes contact with the above-mentioned act of comparing. Quite accordingly, Locke wrote as follows:

> "When the mind so considers one thing that it does as it were bring it to and set it by another, and carries its view from one to the other, this is, as the words import, *relation* and *respect*."

Other writers—in particular Hume, about fifty years later—followed closely in his footsteps. He, like Locke, regarded relations as the products of acts of comparison. In his classification of them, too, he does not depart widely from his predecessor. He brings them under seven heads, to wit, "resemblance", "identity", "space and time", "quantity or number", "degree of quality", "contrariety", and "cause and effect". But at least as long previously as the Middle Ages, the meaning of the word relation had undergone a further change. It had dropped its reference to any act of comparison between objects, and had meant instead the tie-up between these objects themselves. Thus when two white walls are alike, it was said, this likeness

is a "relation" between these objects; not necessarily between any acts of comparison, nor even between any products of them. For no comparison need ever occur; possibly no one person might ever have seen both walls.

And surely this is also the view both of common sense and of science. In the world of ordinary experience, we all regard things as having not only attributes of their own, but also relations with one another. Among the things are men, animals, houses, trees, and what not. Among their relations are the facts that one thing is like or unlike another, near to or far from it, greater or less, earlier or later. Everything so far is for the plain man clear enough.

But for the inquisitive psychologist there arises the question as to the manner in which the knowledge of such relations originates. In particular, does it always and exclusively, arise—as seems to be suggested by Locke —out of acts of comparison? Many observers have answered in the negative. T. Brown, for instance, reported that for such perceiving, an act of comparison "is far from necessary". So too, Fröbes writes as follows:

> "there are also judgments of relation, especially frequent in ordinary life, *which are not based on any actual comparison*. The experience of relation can occur involuntarily, if the relation is conspicuous enough. There is no need for the attention to shift from one object to another. That only happens in case of difficulty."

Thus there are different manners of perceiving the very same matter of fact. Here is one more reason why the manner and the matter of cognition should be sharply distinguished (see above, p. 199).

But this requirement of distinction does not appear to have been commonly fulfilled. Even the Oxford Dictionary throws under one and the same heading such

widely different renderings of " relation " as, on the one hand,

> " The particular way in which one thing is *thought of* in connection with another."

and on the other hand,

> " any connection, correspondence, or association *existing* between things."

However, Stout does unequivocally define a relation as *existing* between attributes of objects (Baldwin's Dictionary).

The Germans seem to be still worse off. Even in Eisler's Dictionary " relation " is identified with *Beziehung* and defined solely as an affirmation (*Setzung*) of relating thought. For the objectively existing connection, there would thus remain no word at all (save the quite inadequate *Verhältnis*). However, at any rate Meinong does suggest the possible applying of the word " relation " to the " objective state of affairs ".

Owing perhaps to this confusion of meanings, the concept of relation has in psychology been surprisingly ineffective. Hamilton, indeed, over a hundred years after Hume, wrote that no part of psychology had been more fully and accurately developed than the doctrine of relation. Yet how his own psychology could claim to benefit greatly from any such doctrine is not easy to see ; for he himself hardly uses the term at all.

A very rich use of it, on the other hand, was really made by Spencer, who went so far as to say :

> " In all cases we have found that Perception is an establishment of specific relations among states of consciousness."

But even he broke down on a confusion of meanings. He failed to distinguish between the perception of a relation and the bare existence of it. Bain, still more curiously,

could not make the distinction between perception of similarity and *reproduction* by similarity; the latter of these two events almost monopolizes his account of the whole topic.

Still later, the concept seems to have sunk into ever-deepening neglect. Occasionally, as by Meinong and his school, some fine work has been done about it. But even this has been mainly no more than a partial revival of what had been effected more thoroughly in the Middle Ages. And by both alike—Brentano, Meinong, with their followers on the one side, and the Scholastics on the other—the relations were treated far more with reference to philosophy than to psychology .

§ 4. *Form*

There remains for our consideration in this chapter a further candidate to be regarded as a constituent of sensory percepts. Among the attributes deemed by Aristotle to be perceived by the senses was what he called the " scheme ". This is usually translated into English as " figure ", a word which comes from the Latin *fingo*, I form or shape.

In this "scheme," then, we get back to the word " form " in its first and nowadays most commonly adopted meaning, that of a system of relations (see Chapter III, p. 70). The physical world—at any rate as ordinarily perceived and as accepted by common sense —is made up of " material " or " stuff " variously inter-related. Originally, the relations so conceived were spatial, and the way in which the material is put together in space was called by the name of form, or some synonym, such as shape, figure, scheme, structure, arrangement, conformation, configuration, distribution, or sometimes even disposition. But as commonly occurs in language, the usage of these words has in the course

of time become broader and more abstract; they have spread over from space to time. They are applied, for instance, to the case of music, the tones being regarded as the "material" and the melody as the "form". Such terms are well within the competence of the plain man (especially if they do not have too many syllables). He will freely say, for instance, that he sees two pieces of ebony put together in the form or shape of a cross.

For our present purposes, then, how much does all this amount to? What does psychology know about "figure" or "form" or "scheme" in the make-up of a sensory percept? How far does any such concept afford real assistance in submitting percepts to analysis?

Certainly it was taken up cordially enough at the Renaissance. Locke says of the mind that:

> "Observing how the extremities terminate either in straight lines, which meet at discernible angles; or in crooked lines, wherein no angles can be perceived, by considering these as they relate to one another, in all parts of the extremities of any body or space, it has that idea we call figure, which affords to the mind infinite variety."

But subsequently the career of this concept of figure or form has been rather unprogressive. Hamilton, for instance, despite his generally broad views, gives to it little or no mention. Much the same may be said of James. Sully at least gives a definition and some account of it:

> "A form is constituted by the relative positions of its several parts, and more particularly by the character or arrangement of the boundary lines making up its outline or contour."

With Ward, rather surprisingly, it is again neglected. Even Wundt, in 1911, elaborate as is his account of the perception of space, leaves figure or form almost untouched.

Nevertheless already in 1890 a little paper had been

published by Ehrenfels which was destined to excite wide enthusiasm for something very like form under the name of *Gestalt* (see Chapter XXIV).

And in 1913 the perception of form (*Gestaltwahrnehmung*) was submitted to penetrating experimental analysis by K. Bühler, who, as Locke long before him, found that the " elements " consist of straight and curved lines.

Now about this " figure ", " form ", or in this sense " Gestalt ", there is one question that has been hotly disputed: How does it stand with respect to the " relations " considered previously? Many authorities, as Stumpf, Gelb, and Marty, would straightway identify the two. But others, as Cornelius, Husserl, Kreibig, and most modern gestaltists, have declared the two to be fundamentally different.

From this deadlock let us try to escape by considering a concrete elementary example, that of two lines crossing each other as in the accompanying figure.

The perception of this may readily appear as a case of perceiving a " relation ", that of " crossing each other ". But it can also be taken as a case of perceiving a " form ", that of a cross. And yet in the two cases, *the fact perceived remains identical.* To this extent, Stumpf was quite right in saying that the two perceptions are the same. And this goes, too, for the plain man, who is out only for the information supplied. He just sees the cross as it is and stops at that.

But other psychologists coming on the scene are not so simply satisfied. Little if at all concerned with the fact that is perceived, they eagerly observe varying manners of perceiving it. One way is to look first at the horizontal line, then at the vertical, and finally have the complete idea of " a cross "; so that the transaction has three distinguishable phases. But another way of

arriving at the very same information is to see the same three items—horizontal, vertical, and across—not apart from each other, but intimately fused together. In the case of the distinguishable phases, the operation is usually called perceiving the relation. In the case of the fusion, it is more commonly called perceiving the form. Thus, despite the information remaining identical, the operation does vary. So far as this operation is concerned, Cornelius, then, was right in asserting the cases of relation and of form to be different.

From the viewpoint of the German language there is considerable interest in the following remark of Meinong, of which, however, no one seems to have taken notice. He writes :

> " Without doubt there exist relations, which, to be presented, do not demand the analysableness of their members."

But he adds :

> " Such a considerable broadening of the scope of the term ' relation ' must have the effect that much which accordingly must be called relation would offer an essentially different aspect from that which one has previously been accustomed to connect with this word."

But it may be noticed that the distinction which he is so timidly introducing has already to some extent been anticipated even by the man in the street. The latter marks the difference by different forms of speech. In the case of the relation being analysed out of the whole, he talks of seeing *that* things are related. In the alternative case of its not being analysed out, he sees the things he says *as* related, or *in* relation.

In general, then, we seem entitled to conclude that every perception of form involves—so far, at least, as concerns the information conveyed by it—the perceiving of relation; or, more usually, of a system of relations (*not* a " sum " of them !). In common language, it is

primarily the sort of spatial perception defined above by Sully, which deals particularly with boundary lines. But secondarily, by way of analogy, the scope of the word " form " admits of very wide extension (see Chapter III).

This conclusion—by the way—is seemingly just the polar opposite to that of Cornelius, who declared that relations were classes of forms. But possibly the two statements really amount to much the same thing: extremes meet.

§ 5. *Case of " Continuity "*

At this point we may consider another case, one which has brought great trouble not only upon psychologists, but also upon the exponents of other sciences. This is the case where any character extends over any region *evenly*; otherwise expressed, the change if any is nowhere abrupt. An instance is afforded by a flat wash of colour, as usually desired on parts of a motor car; or by colour changing evenly in one direction, as when an unclouded sky grows uniformly darker towards its zenith; or even by colour which undergoes varied changes but always without abruptness, as instanced in the hues of a rainbow or full spectrum. In sound, again, there is the sustained note of the signal for workmen's breakfast; there is the crescendo of the siren; there are the rising and falling tones of howling animals, or windswept forests, and so forth.

Now such evenness of transition is extremely familiar to, and perfectly understood by, every ordinary sane person. But it brings grievous embarrassment upon those who wish to know more than is ordinary. The first lapse in this direction is to invoke a Latin name; that which for the plain man is only " even " or " uniform " becomes for the philosopher or scientist a " continuum ".

The next step downwards is to express this remarkably clear concept in terms of other concepts that are remarkably unclear. For this purpose, as early as 500 B.C., Zeno of Elea made very effective play with the concept of " infinity " in his famous puzzles of the Tortoise and Achilles and of the Resting Arrow. His example of creating puzzles has been largely followed in the modern mathematical theory of functions.

Nor does the notion of a continuum appear to have been greatly illuminated by the scholastic philosophers when they connected it, not only with the idea of infinity, but also with the almost equally difficult one of " parts ". And when finally continua happened to be encountered not only by philosophers and mathematicians, but also by psychologists, then new trouble arose. A relation was assumed to be something perceived between two (or more) objects; whereas the percept of a uniform surface —so introspection claimed to discover—did *not* fall into any such multiplicity of objects. Hence, it was argued, the perception of a uniform surface as such does *not involve any perception of relation*.

But this argument leads to a pleasant paradox. The very essence of a uniform surface is that it is all alike. To be alike is certainly to have likeness. And to deny that likeness is a relation would seem to depart from the very meaning of words.

To solve the difficulty, let us go back to the assumption from which it arose: namely, that a relation is something perceived between different objects. The assumption is plausible enough. It enters indeed into several of the formal definitions of a relation, e.g. that given by Stout:

> " When an attribute of an object *a* by its intrinsic nature also qualifies another object *b* in such wise that it cannot be conceived to exist apart from *b*, this attribute is said to be a relation between *a* and *b*."

Moreover, a similar duality of objects is to be found every time anyone states a relation. And indeed, with the dubious exception of impersonal verbs, it occurs in every statement whatever; "*a* is like *b*", "cold freezes water", "tomorrow follows today".

Now, despite this universal expression of relation as subsisting between two or more definite objects, we may suggest that after all these are not essential. Perception of likeness, as of other things, may occur in various manners. Sometimes, no doubt, the likeness does occur between two well-defined objects: I see this white sheet of paper to be like that one. But at other times, the objects may be ill-defined: I see the upper half of the sheet to be white like the lower half, although there is no definite boundary between them. And at yet other times, the whiteness as perceived is not broken up into any multiplicity of objects at all; a patch of paper looks uniformly white all over. Here the perception of likeness has become what may be called *diffuse*; but likeness remains likeness, and therefore here too a relation. With apologies to the Bard of Erin—break and scatter the likeness if you will, the fact of relation will hang round it still.

§ 6. *Relativism*

From what we have so far met in this chapter, it would appear that in the great majority of psychological expositions the role of relations in sensory perception has been surprisingly undervalued.

But there have also been attempts—far less numerous—to achieve the opposite extreme; to depict relations as being on the contrary the beginning and end of all things. Many are the ramifications of this doctrine of so-called relativity. The most conspicuous homes for it have been furnished by the philosophical theories of

epistemology (real knowing) and ontology (real being) which do not concern us here. But it has also found not a little application to the study of the mind and particularly to that of sensory perception.

Especially well known is the " Law of Relativity ", as formulated by Bain and already adumbrated by Hobbes. Because the effect of any sensory stimulation is always influenced by the stimulations that precede it, Hobbes had gone to the length of declaring—and thousands have followed him—that an unchanging sensation would be no sensation at all (see Chapter XXXIII.).

Among other prominent cases of relativism is that which has arisen in respect of space. Since all perception of space involves a mass of conspicuous relations, certain authors have concluded that spatial percepts consist wholly of relations, and not at all of positions related (Chapter XII).

From all such paradoxes the plain man stands aloof. He thinks—more or less dimly, it is true—that if relations exist there must needs also exist something correspondingly related.

§ 7. *Illustrations*

The preceding pages about the perception of relations and of forms may be supplemented and illustrated by some typical examples.

Unfortunately these, in order to be presented on the pages of a book, must needs be taken from the visual sense, which is the most complex and difficult of all. Far simpler, and therefore more effective, would have been examples taken from the touch-spots (see above, p. 206).

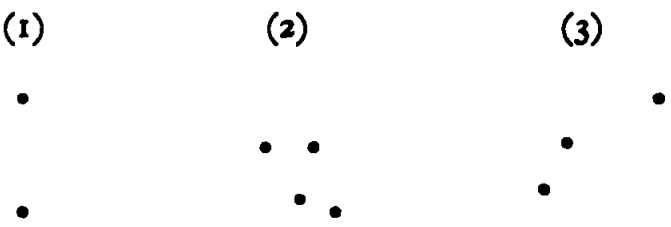
In order to attain our end with vision, the reader must be asked for sympathetic tolerance, and even for a little imagination. Thus, to begin with, we should like to

take as simplest element the smallest visible dot; this is the famous *minimum visibile* (it is far from being the same thing as a mathematical point). But in practice, we are obliged to employ dots considerably larger than this. Again, we would like our dots to derive from correspondingly point-like physical stimuli; this would give us bright and maybe coloured dots. But for convenience of printing we must needs use black ones; colours we must indicate by symbols, as is done in heraldry. Yet again, to attain maximum simplicity demands that our dots should be presented without any background. But this is impossible in the case of vision; the dot, whether dark or light, must needs be set somewhere in the whole visible field. How different is the case of sound! When hearing a simple tone, a person need hear nothing else. He certainly does not all the time simultaneously hear a large surrounding field of silence! Ignoring such unessential complications, however, our dot as conceived has still all the four fundamental characters discussed in the preceding chapter; it has quality and intensity (though in the case of vision these are, as well known, hard to distinguish); it has also a spatial and a temporal position, or, otherwise expressed, a thereness and a nowness. As for relations, it has internally none. Externally, it has but little; in respect of space, it has only some more or less incidental reference to other percepts, such as that of the perceiver's own body. Similarly as regards time; but of these and all other time relations we are obliged—again for convenience—to take no further notice.

After all this apology, let us get down to work. Imagine first the appearance of a dot, under the prescribed conditions (minimum size, no background, etc.); with some reservations, we can say that it presents neither relations (internal) nor form. Next, however, let us turn to the case of *two* or more such dots taken

together, as illustrated below under (1), (2), and (3) respectively :

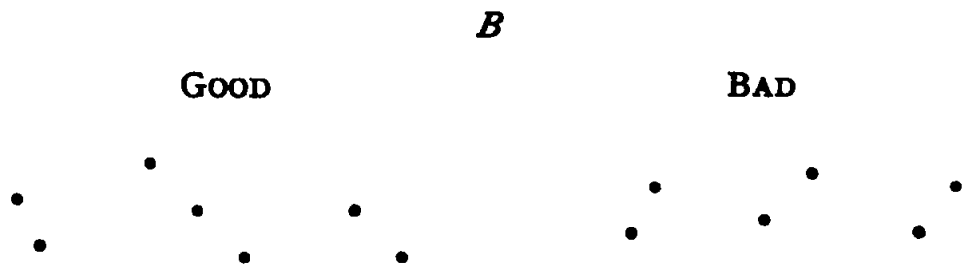
A



In this case the perception of a single dot is enriched, not only by the further dots, but also by all the relations between the different ones. The two dots must needs have either the same or different darknesses; they must be in some direction to one another; also they must lie at some distance apart. But likeness, difference, direction, and distance are obviously " relations ", if we take this term in the objective meaning of Aquinas, Stout, and common sense.

The study of all such percepts of relation can be enlivened by throwing them into the guise of mental tests, as devised by Line. In the case of *direction*, for instance, the subject may be shown the first line of Fig. B (p. 231) and told that the three groups of dots on the left are " good " while the three on the right are " bad ". He is then shown the second line of Fig. B (p. 232) and asked to select the good groups from the bad ones (and ought to pick 1, 3, and 4).

B



FOR SELECTION



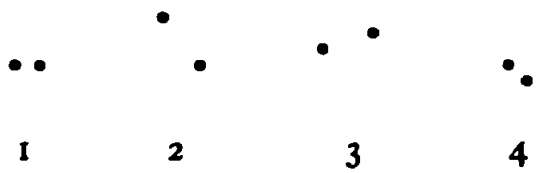
The other case, that of *distance*, is exemplified in Fig. C:

C

GOOD BAD



FOR SELECTION



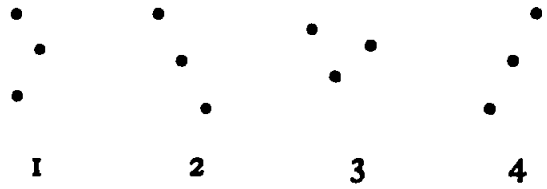
Note that in these tests the subject has to perceive not only the directions and distances themselves, but alsc their likeness and unlikeness in these respects; we here have relations *between* relations, or, as we may call them, relations of higher order. By introducing more elements, the number and order of relations presented may, of course, be increased.

D

GOOD BAD



FOR SELECTION



In D each "good" figure has its constituent three dots in a straight line; that is to say, lying in one and the same direction, whereas each "bad" figure has its constituents lying in more or less different directions. Accordingly, the test demands the seeing of relations between relations-between-relations.

Let us now turn to the case where the dots are brought into contact. We thus may get:

E

GOOD BAD



FOR SELECTION

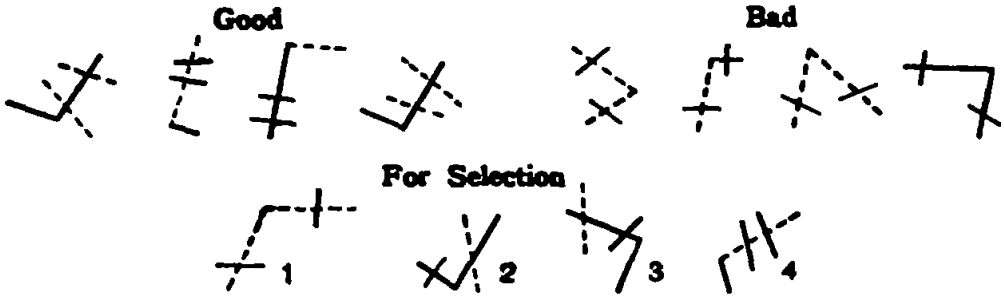


In principle, at any rate, everything happens just as before. But, at the limit of closeness, the appearance of the three dots approximates to that of a line, and as the dots become more numerous the line only becomes longer.

Merely by combining lines, with or even without the introduction of colour, the tests can be made as difficult as required. An example is F, where the continuous and

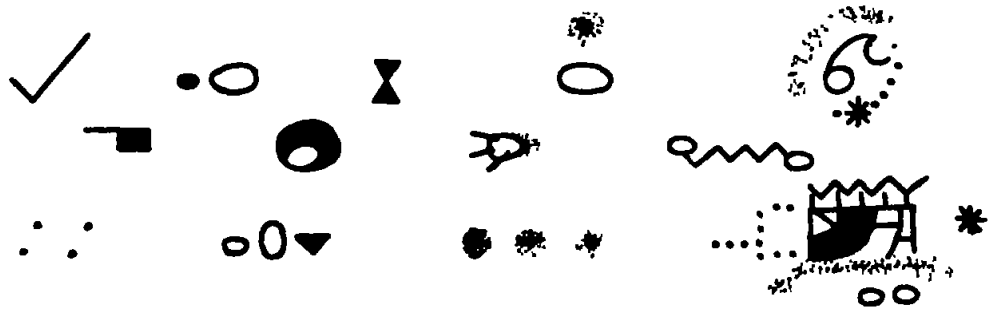
the broken lines symbolize respectively any two different colours. The solution is left to the reader.

F



In the same way as in our figures we proceeded from smallest visibles to lines, so from lines we can go on to areas. And there is no fundamental difference between areas bound definitely or indefinitely. The figure G presents a few more or less randomly obtained diagrams which may serve to indicate how easily the relations involved may become extremely complex.

G



Throughout these figures, whether used as tests or otherwise, we have been solely considering the relations which are *objectively present*. We have left out of account the fact—only too obvious to the testee—that in actual practice a great many of these will *fail to be noticed*. From beginning to end, then, each diagram can be analysed into a set of dots, which lie in a system of relations. The whole diagram—dots in relation—con-

stitutes what Aristotle called a " synolon " and Meinong a " complexion " (see Chapter IV).

Now, after all this demonstration of " relations ", we come back to the question causing so much trouble in the world, as to what, if anything, they have to do with " schemes ", " figures ", " forms ", " configurations ", and so forth. The suggestion here is that any one of the diagrams could be quite appropriately designated by any one of these names. Take for example the three " good " answers in D. In each of them the three dots can be perceived either to have linear relations, or else to have linear form. The two modes of expression do indeed hint at different ways of regarding the diagram, but imply no difference whatever in the diagram regarded. Following Sully, we can say that the form is actually constituted by the relations.

§ 8. *Upshot*

In the preceding chapter, we have found that—contrary to a common assertion—the immense majority of psychologists have *not* taken sensory perception to be merely a sum of sensations. Almost all have also admitted, and many have thoroughly investigated, acts of discrimination and comparison. Furthermore, there has been from the earliest times a general acceptance of " scheme ", " figure ", or " form ". But until very recent times, it has been rather fitful and perfunctory.

An incomparably worse fate and from the most ancient days, however, has befallen the perception of relations. This perception, although so fundamental for mental life and so extremely familiar to the man in the street, has been almost ignored by the great majority of psychologists. True enough, they imply it—and cannot help doing so—throughout all they write. But they rarely, if ever, mention it explicitly. Still less do they make it

the foundation of the psychology of knowledge.

And when we turned to the exceptional authors, as Spencer and Bain, who do treat the perception of relations elaborately and appreciatively, the situation became almost worse. For them the whole treatment proved to be radically vitiated by certain fundamental fallacies.

Finally, we took the occasion to show that relations and forms are really terms denoting the very same objective facts perceived but indicating more or less different manners of perceiving them.

CHAPTER XIV

PERCEPTUAL SUPPLEMENTS

§ 1. The "Son of Diares". § 2. Reproduction of Context. § 3 Adjusted Supplements. § 4. "Super-Sensible" Supplements. § 5 Upshot.

§ 1. *The "Son of Diares"*

Is our analysis of sensory perception now complete? When a person looks upon the world around him, is his experience in so doing made up simply of the four fundamental sensory characters (quality, intensity, space, time) plus the relations between these? Such has at any rate not been the general opinion of psychologists. On the contrary, these have from the earliest recorded times divided up a sensory percept into two portions, of which only one supplies genuine direct knowledge, the other being of a more or less adventitious nature. This was excellently illustrated by Aristotle in the experience "when a certain white object is perceived as the Son of Diares". The "white object" is all that is directly known. It is only taken to be the Son of Diares owing to some previous encounter with this person in a white dress. So satisfied is Aristotle with the illustration, that he repeats it elsewhere, only changing the "Son of Diares" to the "Son of Cleon".

In this fashion the percept, or object perceived, was analysed into two constituents. These are, in Aristotle's case, the bare "white object" and all the rest that goes to make up the appearance of the "Son of Diares".

The plain man would probably describe the case by saying that the white object is really seen, whereas the remainder is merely imagined.

According to Aristotle, however, the characteristic of the latter or secondary portion is that here " nothing suffers " (*οὐδὲν πάσχει*), which has been freely translated into English as " the organ of sense is affected in no way " ; that is to say, this constituent of the sensory percept has no counterpart in the sensory stimulation ; it is some sort of interloper.

Many subsequent philosophers, especially among the Stoics,—under the stress of having to explain illusions and hallucinations—characterized the perceptual intruder somewhat differently. For them it was

> " that which does not proceed from any real object, or, if it does, fails to agree with the reality itself, not being clear or distinct."

But for psychological purposes this view appears to be less helpful than that of Aristotle. It refers us back to " reality ", and who shall decide what *that* is ?

Even with the formula given by Aristotle there is a danger of including more than he meant. For instance, he did not want to include the perception of black ; yet black really appears in just those parts of the conscious visual field whose counterparts in the retina do *not* " suffer " anything.

Still less did Aristotle intend those anomalies where any part of the conscious percept has indeed a counterpart of physiological stimulation, but fails to correspond with this in quite the ordinary way. Familiar cases are those of contrast and assimilation.

For Aristotle and his followers the characteristic of the secondary portion of the percepts is not descriptive but genetic ; not so much that it is devoid of sensory stimulus, but rather that it is *κατὰ συμβεβηκός*. This expression is usually translated as " incidentally " or

" by chance ". But a better rendering might perhaps be " by incidental concomitance ", or even " by association ", seeing that it comes from *συμβαίνειν*, to go together.

On the whole, we appear to have come upon one of the earliest and most indisputable advances of scientific psychology beyond common sense. A sensory percept has been analysed into two parts, a primary core which is definitely connected with the stimulation of the sensory organ, and a secondary supplement which appears to have no such fixed connection, but derives instead from " incidental concomitance ", or " association ".

§ 2. *Reproduction of Context*

Turning from ancient to modern times, the most widely accepted account of the nature of this secondary supplement is still to a large extent just that which was suggested in the words of Aristotle himself; the supplement is only a reproduct due to an association formed by virtue of previous " accidental concomitance ". Suppose that originally two sensory stimulations produce respectively in any mind the items *a* and *b*, and further suppose that in a later perception the stimulus of *a* occurs without that of *b*. The conscious result—according to the view we are considering—will not be *a* alone, but *a b'*, where *b'* does not derive from any present sensory stimulation at all, but instead is some reproduction of the earlier *b*. Looked at from a slightly different angle, *b'* may be called the former sensory " context " of *a*.

And this account of the matter does seem to be plausible enough in certain cases. Instances are those much stressed by Herbart and his followers under the name of " complication ". An often quoted example is the sight of shining armour, which, it is said, " looks " hard and cold; these are characters that cannot belong primarily

to vision at all, but can very readily be traced back to previous associations. More striking still is the example furnished by chocolate, which vividly smells sweet, although sweetness really is no character of smell, but only of taste. In some psychological courses given by the writer the students were made to smell pieces of "baker's" chocolate, which has no sugar. At first they were positive that they did actually smell sweetness. Even on being told that this is impossible, they were frankly sceptical. Their disillusion on actually eating some of it came to them as a shock.

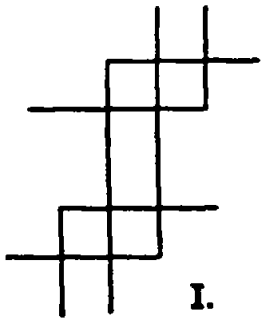
Not so complete seems to be the associative account in the cases which the Herbartians called "fusion". Here the two items, reproducing and reproduced, combine so intimately that they can no longer be distinguished.

In the extreme form of this case, the result of an earlier stimulation is only to co-operate with the later one so as to produce an intermediate percept. If, for instance, two unseen bells are sounded at an interval of about a second in not very different directions, then the seeming position of the second bell shifts somewhat towards that of the first bell. Similarly, the present writer has found that if a subject is repeatedly touched on his arm with his eyes shut and is each time asked to point out the place (on a plan or model), this apparent place will shift towards the centre of all the places really touched (Vol. II, p. 66). Further difficulties, though not insuperable ones, meet the attempt to extend this "associative" explanation to the case of recognition. Consider again Aristotle's percept, the core of which was merely "something white". The process of recognizing the white object as the "Son of Diares" may perhaps consist in identifying it with other similar white objects seen by him before in the streets, swimming baths, wrestling arenas, racecourses, halls of justice, and so forth. The perceiver is in this way in-

vesting the present object with the contexts of the earlier objects. And so intimately does he do so, that the revived contexts constitute part and parcel of the percept; he sees the " white thing " *as* the familiar " Son of Diares ".

More delicate still is the case of reproducing not an individual but an idea. Objects, besides presenting themselves in all their individualities, instantly recall and become invested with various general ideas. A giant is not simply seen to be so many inches high; he looks decidedly " tall ". Similarly, a thundercloud shows more than merely a certain degree of greyness; it looks " dark ", and even " menacing ".

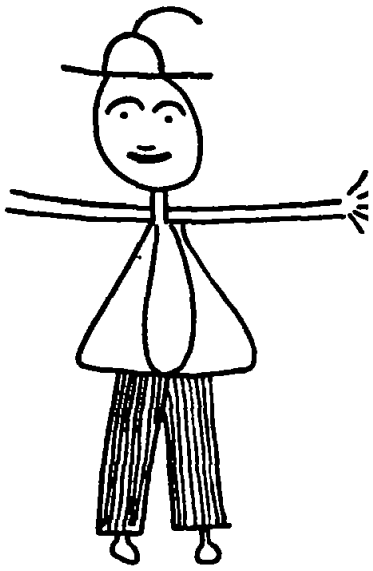
The unexpected effectiveness of such recall of concepts has been shown in those experiments where a picture, as given below in I, is only displayed for a fraction of a second and then the subject is told to reproduce it. A typical result is given in II.



I. II.

As will be seen, the reproduct is no mere bad drawing; it departs from the original altogether. To explain it, we may suppose that the sight of the original picture evoked several familiar ideas, such as those of " a star " and " short horizontal lines "; that these secondary supplements persisted in mind even after the primary constituents of the percept had been forgotten; and that they then served as material out of which the perceiver proceeded to the construction shown in II. The procedure is carried to an extreme in the drawings of young children. These usually do not attempt to copy

this object as actually seen, even whilst it is still before their eyes; instead, they construct something out of the ideas which the object recalls.



Often, no doubt, the conceptual reproduction is so clearly detached from the primary perception as to be more properly called an accompanying "thought". But in a great many cases, at any rate, the percept and the reproduct are most intimately welded together. Not two acts but only one would seem needful to see, for instance, a passer-by as "pretty". However, this distinction of genuine sensory perception from concomitant thought is, no doubt, one that has caused much trouble. We shall meet it again when we come to analyse thought itself.

The origin of such an association is charmingly depicted by Nunn in the case of a small child who one day sees and plays with a bright silver spoon and next day sees a large wooden one. Then he seems to prove by his behaviour that he classes the novel wooden object with the familiar silver one. This feat implies *some* degree of recognition. It may correspond to the thought: "I have seen something like this before".

All the above experiences have plausibly enough been regarded as cases where one part of the percept is primary in the sense of being traceable to the present sensory stimuli whilst the remaining part is secondary in being only some reproduction of the previous context of the primary part. But this statement must at any rate be taken with much reservation. Nothing—least of all any previous mental context—is ever reproduced *exactly*. To begin with, the mere fact of being reproduced alters

sensation profoundly; turns it, as it were, to a mere spectre of its former self. And besides this general change, there are a thousand and one accidental modifications derived from as many differences in the whole situation present and past. Nevertheless, our preceding cases and countless others can perhaps *in the main* be attributed to associative reproduction.

And that with many psychologists is the end of the matter. Maher, for instance, says that in perception, the sensory organs present sensation, but

> " the remaining elements of the cognition are reproductions of past experiences."

§ 3. *Adjusted Supplements*

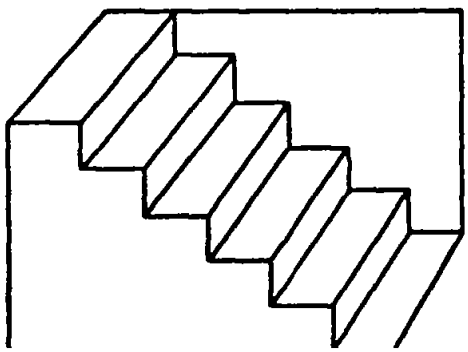
But other authorities are far from sharing this view. They hold that bare reproduction has only a limited influence in evoking the secondary constituents. To a large extent these are novel; they are no mere extracts from the past situation, but are specially adjusted to the present one. The new context is not the same as the old one, but only *bears the same relation* to the rest of the percept as that did.

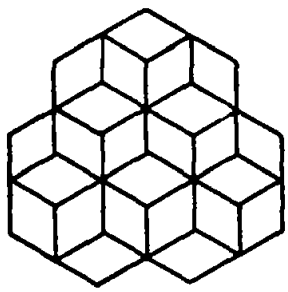
Suppose, for example, that I perceive for the first time a monster orange. The stimulation of my retina is at most responsible for my seeing the front surface of the fruit. Yet I do not perceive it as a bare surface, but as solid. The rest of the fruit other than the front surface is, then, an imaginative supplement, having no counterpart in the stimulation. So far the case resembles those we have been seeing in the previous Section. But now comes a great difference. In the previous cases the supplements approximated to being revivals of constituents of some earlier experiences. But in the present case of the monster orange there is not even an approximation. I do not perceive the present monster surface as

backed up by any of the smaller spheres hitherto familiar to me, but by a sphere as monstrous and unfamiliar as itself.

This example is imaginary. But real examples are usually present to every one of us in their dozens. A person is almost always faced by a multitude of solid objects, of which only the frontal surfaces can discharge rays of light into his eyes. Yet when he looks at them naturally, he by no means perceives them as an array of mere surfaces. Instead, they all appear to be solid (as in reality they may or may not be).

Still more striking are the so-called "equivocal figures", where the supplementation of the actual stimulus can occur in different ways, which therefore contrast with each other.

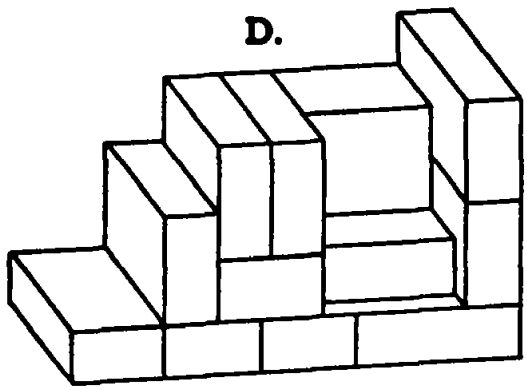




This figure of Schroeder (A) usually appears as the upper side of a flight of stairs, but can turn into the lower side of an overhanging wall. The former aspect is very familiar to everyone, and therefore could at a stretch be regarded as a mere reproduct. But the overhanging aspect on the contrary is for most people something quite unlike all their previous experiences at any time, and yet it is just as vivid as the aspect of stairs. As another example we may take figure B, which can appear in a great variety of manners; the spectator is painfully torn between them. And for each, however novel, the apparent backing is

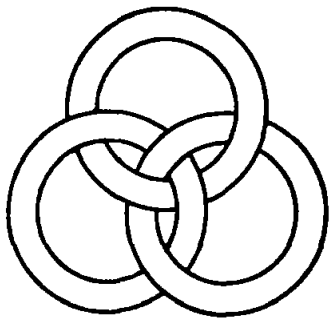
exactly appropriate. It is not anything all-ready-to-wear, but specially constructed so as to fit.

Such extension of the percept beyond the scope of the physiological stimulation occurs not only from front to back, but also from side to side. A passable illustration of this fact may be supplied even by a linear drawing on paper. The impression given by the accompanying figure D is that of rectangular blocks all similar and all extending backwards and sidewards beyond their exposed faces.

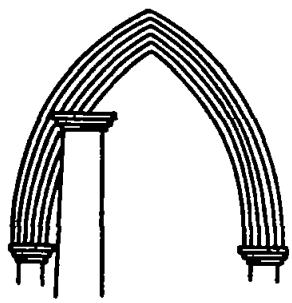


D.

So too in E we tend to regard the rings as complete and interlaced, rather than as broken and carefully laid together. In F there is a similar effect, but somewhat stronger.



E.



F.

Our examples of adjusted supplements have all been taken from extensions in space. But analogous adjustments are to be found also in the case of quality and intensity.



G.

Close the left eye and look with the right at the smaller dot. By varying the distance of the eye from the book, a point can be found where the rays from the larger spot fall upon a small area in the

retina which is bare of visual nerve-endings. Hence, the black spot will disappear. In its place, however, will not be a gap, but instead a white surface which vaguely extends to and matches the surrounding field.

Less curious, perhaps, but of far greater importance for modern controversy, is the phenomenon of the stroboscope, zoetrope, cinema, and similar instruments. The physiological stimulus is given by isolated but rapidly successive phases of a movement, yet the ensuing conscious percept is that of a movement perfectly continuous. Here the gaps between the phases would seem to be filled out in much the same way as the gap left by the blind spot.

As for the mechanism by which the mind ever attains to such adjusted supplements or other essentially novel presentations, reference must be made to Chapter XXXIV, especially under the heading of the third " noegenetic law ".

§ 4. " *Super-Sensible* " *Supplements*

Up to this point, however, the constituents which we are calling the primary core and the secondary supplement of a percept have presented items which, even if specifically different, are still of the same general nature. The supplements no less than the cores have been restricted to quality, intensity, space-character, and time-character, together with the relations between these. But now we will turn to further perceptual supplements, in which this restriction disappears and scope is allowed for additional items of a fundamentally different kind.

To mark this distinction, Lewes nearly a century ago proposed some new terms. The core of a percept he would characterize as " sensible ". The supplement, which though extending beyond the core remains of the

same general nature, he called " extra-sensible ". And the further supplement, which lays claim to higher rank, was for him " super-sensible ". To this last category we will now betake ourselves.

For instance a normal man does not appear to exist within a world of sensory characters that characterize nothing and only float in a void. Nor do our senses present to us the bare extension imagined by Descartes. Instead, they present extended *entities*. A rose does not merely look to be red here and now ; it is perceived as some thing that possesses these three qualities.

Vainly then did Locke declare that the idea of substance is one

> " which we neither have, nor can have."

To no more purpose did he go on to assert that

> " by the word substance we signify nothing."

The ruminating psychologist, indeed, may greatly worry himself with definitions of the word, but the plain man employs it glibly and unequivocally enough. The things he sees *look* and *feel* like substances, not ghosts.

How, then, do they ever acquire such a look ? By what manner of means do such constituents ever introduce themselves into the mental states caused by sensory stimulation ?

Furthermore, the substances do not always seem to be inert. When we look for instance at a prize fight or at the working of heavy machinery, these things have a vivid appearance of exerting " force ". Whence does such an appearance derive ? It has been said to come from association with previous tactual experiences of " resistance ". And this has been declared to consist of nothing more than sensations in or about the muscles, tendons, and joints, " transformed " by means of " mental chemistry ".

But most authors reject such alleged transformation as a mere juggling with meaningless verbiage. They urge that, in point of fact, the sensations producible in the neighbourhood of the muscles, tendons, and joints, are known to consist of little more than pressure, pain, warmth, and cold. Take any of these or any combination of them, thereby—so urge the opponents of the doctrine of transformation—you will never get anything that is in the least like what we mean by force, or resistance, or indeed cause of any kind.

At the present day, this divergence of view as to the origin of the seeming experience of force remains unabated. But both contending parties would seem to have abandoned their former mutual recrimination for the easier attitude of complacent dogmatism.

Continuing our list of "super-sensible" characters to be found by analysis in sensory percepts, we come upon the most wonderful of all. In the very instance quoted originally by Aristotle, the "white object" became for him the appearance, not merely of a substantial and forceful body, but also of a unitary person, the "Son of Diares", someone that knew, felt, and willed more or less like himself. How did *this* character—no late product of excessive philosophizing, but manifest already in the percepts of most primitive men—ever manage to arise? Consider the four stages. First, a mere bundle of light-rays impinges on the retina. Then by processes that seem intelligible enough, the physical excitation spreads up the sensory nerves. Thirdly, comes the miracle that engenders the percept of a white area (see Chapter II). And lastly comes the conversion of the white area into the appearance of a human being. Is this last metamorphosis also miraculous? At least, we may reply, it would appear to be explicable as the natural operation of the general laws of the mind. Of this matter we shall see more on coming to the sections

in which these laws are set forth (especially Chapters XXII and XXXIV).

§ 5. *Upshot*

In this chapter we have been considering the attempts made to discover in sensory perception any further constituent over and above the fundamental sensory characters treated in Chapter XII and the relations discussed in Chapter XIII. We have found some such surplus urged of old by Aristotle in his discussion of the percept of the "Son of Diares".

But as to the nature of this second kind of constituent, there has been much dispute. Some authorities have taken them to consist exclusively of reproducts. But others—and apparently with better reason—have declined to credit mere reproduction with so much influence. A perception does indeed, they say, take much from previous experience. But this increment, instead of being any bare reproduct, is usually modified to meet the new situation.

Then come alleged constituents of yet a third kind. These do not obviously derive from any of the sensory characters, or even from their interrelations. They have been designated as "super-sensible". Outstanding cases are the appearances of "unity", of "substance", and of "force".

In all such matters, common sense has been of small assistance, and indeed is not much interested. Nevertheless, as we shall see subsequently, the matter is of great importance, both for psychology and even for ordinary life.

CHAPTER XV

WAYS OF REGARDING

§ 1. Acts and Objects § 2. Theory of Vicarious Images
§ 3 Sensation and Meaning. § 4. Sense and Imagination
§ 5. Mental Quantity § 6. Perceptual Grouping. § 7. Upshot

§ 1. *Acts and Objects*

At this point we will turn to a feature in perception which to the plain man is perfectly familiar and—partly for this very reason—devoid of interest. But to the thoughtful psychologist it may become the most fundamental of all facts; whilst to the philosopher it often appears as the very hub of the real universe. One way or another, it has always been a storm centre of controversy.

This surprising feature of the psyche consists of nothing more than is given in even such an elementary statement as "I see blue"; well understood by every man, woman and child that can speak at all. In this bare sentence the apparently simple experience of seeing is broken up into three distinct parts: the blue which is seen, the person who sees, and the act of seeing. Now, the first of these three is commonly called the "object" and even this word is among the earliest acquisitions of a child learning grammar. The person who sees, on the other hand, is the "subject". And the act of seeing is not infrequently designated as "subjective". Such is the universal manner of knowing. To the plain man,

it is *of course* like this. But the more people cogitate about it, the more wonderful they find it to be.

The distinction between the subjective act of perception and the object perceivable is set forth by Plato as follows:

> "To the perceptions we give the following names, seeing, hearing, smelling, cold and heat and moreover pleasures, pains, desires, and fears are so called, and there are innumerable others which have no name, and vast multitudes that have been named; again, there is a class of perceivable things akin to each of these, all kinds of colours to all kinds of vision and in like manner voices to hearing and other perceivable things are produced corresponding to the other perceptions."

Another ancient psychologist and philosopher much interested in the matter was Augustine. He remarks that a person's knowledge is always of an object, and even seems to keep the object away from him.

In this last curious little observation may be perhaps found the seed that after a great many centuries was developed into a mighty tree by J. G. Fichte. His doctrine was founded on the assumption of two great acts: the Ego affirms itself; and in so doing it necessarily affirms the Non-Ego.

Another interesting distinction between acts and objects has been as to which of the two should form the basis of the "faculties" or "powers". The matter is elaborately discussed by Aquinas, who compromises:

> "A power as such is directed to an act", but "the nature of an act is diversified according to the various natures of the objects." "Therefore the powers are of necessity distinguished by their acts *and* by their objects."

But the most drastic, indeed dramatic, use of the distinction has been that of Brentano. According to his doctrine, every experience can be analysed into two

classes of phenomena, designated respectively as psychic acts and physical objects. He writes as follows:

> "An example of the psychic phenomena is given in every presentation (*Vorstellung*) whether sensed or imagined: and I mean here by presentation, not that which is presented, but the *act* of presenting. Thus, the hearing of a tone, the seeing of a coloured object, the sensing of warmth and cold, together with similar states of imagination are examples of what I mean. But so are, too, the thinking of a universal concept, if withal such really occurs. Further, every judgment, every remembrance, every expectation, every conclusion, every conviction or opinion, every doubt is a psychic phenomenon. And such again is every emotion, joy, sorrow, fear, hope, courage, despair, anger, love, hatred, desire, will, purpose, astonishment, admiration, contempt, and so forth.
>
> "Examples of physical phenomena, on the other hand, are a colour, a figure, a landscape, which I see; a musical chord, which I hear; warmth, cold, smell, which I sense; together with similar structures (*Gebilde*) which come to me in imagination."

From his proposition that only the acts are psychic, he proceeds to draw a natural but far-reaching corollary. In the varying nature of these acts alone, he concludes, can we possibly find the subject-matter of psychology. (see Chapter I).

Pursuing this argument, he discovers that all previous attempts to anatomize the mind have been on wholly mistaken lines. Of the time-honoured powers or faculties, whether sense, intellect, memory, or imagination, we now hear little. Instead he proceeds to discover by his analysis the act of "presentation" and two further acts which are superimposed on this. The first of these additions consists in "believing" what is presented, or making a "judgment" about it. Crowning this comes the third and final act, which he picturesquely expresses as "love or hate".

To the plain man, all this might seem to be sound and fury signifying nothing. But to philosophers and philosophizing psychologists, on the contrary, it was as cream to the cat. In debt to Brentano appears to have been the whole school of Avenarius. Direct inspiration from him was acknowledged by such men as Stumpf, Husserl, Meinong, Th. Lipps, and Höfler; it was owned, also, by many in the first flight of the younger generation in both Austria and Germany, as Messer, Witasek, and Benussi. Closely connected with the foregoing was the work of the Hungarian Palagyi. Nor has England escaped receiving a notable impression also. The doctrine was greeted not unfavourably by Stout. Marks of it were apparent in the profound "Realism" of Nunn. Much of it found its way into an admirable little paper of G. C. Moore. At least traces of it would appear detectible in the writings of Dawes Hicks and A. Wolf. Still more recently, a view that would seem to embody some of Brentano's essential points gained the powerful advocacy of S. Alexander. And to its credit must be counted also not a little suggestive influence even upon those who overtly opposed it, at whose head stands Ward.

In its extreme form, however, Brentano's doctrine seems to have been short-lived. His view was that the "acts" divorced from any "objects" constitute the whole psychical world. All the objects and these alone, he said, are physical. It is a doctrine that survives only as a curiosity. Although his first volume promised five others to succeed it and carry out its projects, not one of these has ever made its appearance.

Nevertheless, much of what he wrote was eloquent enough—especially for those who had forgotten what had been taught in the Middle Ages.

§ 2. *Theory of Vicarious Images*

The preceding distinction between the object perceived and the act of perceiving is but a particular case of what is much more general. This is the distinction between any matter presented to mind and the manner of presentation; between the object regarded and the way of regarding.

Herewith we come upon one of the worst embarrassments of psychologists. In its generality, it has for the most part been fatefully overlooked. And in the particular cases which have indeed forced themselves to notice, it has commonly led to grave difficulties.

An instance has already crossed our path (Chapter XIII) in the misunderstandings caused by the fact that the selfsame objective set of relations could be perceived, either in abstraction from one another, or else fused concretely together (and then called a " form ").

In the present chapter, we will consider some further instances. We will begin with the ill-starred question as to whether the perceiving of an external object is done in a direct way, or through some sort of mental mediation.

The latter view constitutes the so-called " representative hypothesis " which, according to Hamilton, has been the greatest of all psychological issues. He writes :

> " The grand distinction of philosophers is determined by the alternative they adopt on the question : Is our perception or our consciousness of external objects mediate or immediate ? "

In brief, the problem may be called that of transcendence. It asks how anyone can possibly perceive anything outside himself. And the most common answer has been that mediating between the two, self and non-self, there exists some sort of " vicarious image ".

The reasons which led to the belief in such indirectness

of external perception have been succinctly formulated by Porter as follows:

> "The object often is plainly not in contact with the sentient organ. It is also in its nature unlike the sensitive soul, and therefore cannot affect it. Every thing known must be *in* the knowing agent; but it is impossible that this should be true of the object. It can only be true of its 'species' (vicarious representative). Experience, moreover, proves that the image or *species* only is perceived. When a stick is thrust into the water, it is seen to be bent or broken. A change in the medium changes the object perceived. Our perceptions of the same object vary at different times."

In the earliest speculations, this medium, like the psyche itself, was conceived in a material fashion. According to Empedocles, it consisted in certain physical emanations (*ἀπορροαί*), which escaped from the objects and penetrated into the sense organs. Democritus made the external objects discharge models of themselves (*εἴδωλα*), which impinge on the eyes of the perceiving person. With Aristotle, as we have seen already, the mediation was more subtly effected by means of an "imprint" such as wax receives from a signet-ring.

The Epicureans, however, lapsed back into the materialism of Empedocles and Democritus. Lucretius affirms that there are

> "Images which, being separated, like membranes from the surface of the bodies of objects, flit hither and thither through the air. They penetrate through the small pores of the body and excite the subtle substance of the mind therein."

The Schoolmen ascended again to the more refined view of Aristotle, incorporating his *εἶδος* in their elaborate doctrine of "*species*" (his *ἰδέα* becoming their "*forma*") As to the nature of the species in greater detail, there was a lively dispute. But almost all writers agreed in

conceiving them to be some sort of copies of the corresponding realities; they were described as *similitudines, simulacra, idola*, and so forth. Sometimes their intervention was no longer taken to be psychological; they somewhat strangely acted as metaphysical "determinants" of the percepts.

With the advent of the Renaissance the species were re-modelled and re-issued by Descartes as "ideas". Later on, they were given still more extensive currency by Locke. And they contributed substantially to the propositions of Spinoza.

Widely, however, as was held in both ancient and modern times this belief in the existence of species or ideas additional to both acts of cognition and the objects cognized, there seem never to have lacked a party of voices in protest. During the Middle Ages the species had many eminent opponents (such as Occam, Major, Biel, Durandus, and Franc. Piccolomini). Subsequently to the Renaissance, they were assailed with especial energy and cogency by Arnauld. And still later, the establishment of the contrary theory, that of direct apprehension, formed the fundamental mission of the Scotch school, including Reid, Stewart, T. Brown, and Hamilton. But this opposing party seems not so much to have untied the Gordian knot as to have cleft it in twain. With but little concern for the elaborate arguments of the representationists, and professedly basing itself on the immediate testimony of consciousness, it has dogmatically asseverated that the perception of external things *is* immediate.

In all this turmoil of unprogressive controversy, one line of escape would be that suggested in Chapter III. This is the policy that the problems which cannot be solved should be shelved. However, the present case does not appear to be quite so desperate. The mystery how the mind manages to get outside itself

seems actually to have found a reasonable explanation (Chapter XII).

§ 3. *Sensation and Meaning*

Still even those who will not admit that the age-long controversy has now finally been settled may yet concede that it has at least shifted its ground; quitting the quicksands of philosophy or the less fatal thickets of psychology. From perception and "vicarious images" the quarrel has gone over to "sensation" and "meaning".

Originally, the terms sensation (*sentio*) and sensory perception (*sensu percipio*) meant one and the same thing. But with Descartes and Malebranche the two became trenchantly separated. "Sensation" was no longer anything capable of giving news about bodies external to the perceiver; *that* office was performed by "ideas". The sensations for their part were nothing but passive "modifications of the soul", caused by the stimulation of the sensory organs. In accordance with this change, a sensation has to this day been commonly defined as

> "the conscious state resulting from the action, under stimulus, of some organ of sense."

Herewith, so far as the sensation goes, the philosophical bugaboo of transcendence is for the moment dissipated. A "conscious state" as such is an experience which makes no claim to get outside itself. But this can only be half the story. For if we thus reduce the external perception to a bare state of the perceiver, how shall we ever get it back to the external world again? The usual answer is that the said state of sensation only acts as a "sign" or "symbol" of the external world. The sensation itself is real, but the external world is only a "meaning".

Such, then, is the great doctrine of the manner in which we perceive the external world; a doctrine which has dominated psychology for some three hundred years.

Certainly it goes beyond the limits of common sense. But does it not also exceed the bounds of credibility? Something like the alleged state of sensation has indeed actually been observed (Chapter XVII); but only in the most primitive stage of perception, *not* in the full normal development, and particularly in the case of vision.

With the alleged "signs", "symbols", and "meanings", the case is still worse. For all such terms imply that one thing has been taken to stand for something else. The balls are the sign of a pawnbroker's shop because they have been chosen for that purpose; on similar grounds, laurel has been accepted as the symbol of victory; the word "cat" has been made to mean the thing "cat". But when, or how, or by whom, have particular internal sensations been thus appointed, constrained, or otherwise enabled to stand in lieu of particular external objects? Serious answers to these questions seem to be still lacking.

§ 4. *Sense and Imagination*

The main facts which have given rise to this bizarre doctrine of "meaning" are to be found in the analysis of perception given above (Chapters XII-XIV). We there observed that sensory attributes could be presented in two ways, exemplified respectively by a person's perception of the front surface of an orange and his presentation of the rear surface. The difference between the two appearances is perfectly familiar even to common sense. But to describe this difference may well tax all the powers of the learned. In both appearances the matter presented—such as the colour—may be the same. But the respective manners of presentation are very unlike.

Nor does much clarity seem to be introduced by the German word *Anschauung*. This has sometimes been translated into English as "intuition". It has been defined as the immediate apprehension of a concretely present object, and so has been contrasted with mediate apprehension by means of concepts. But this definition does but throw us back on the same old difficulty as before. Again, we are confronted by the baffling question, *What* is apprehended "immediately"?

In order to find out how the two manners of perception do differ from one another, and so settle what sort of stuff this so-called meaning really consists of, the natural course seemingly is to look and see; to observe, that is to say, under the most favourable experimental conditions. But this procedure, unfortunately, has not often been adopted. Perhaps the most elaborate attempt has been that of a group of psychologists who, day by day, for months scrutinized the experience of perceiving a common object, such as a match-box.

Of our results the following may suffice for the present purposes. The front surfaces of the object, corresponding to the actual stimuli, displayed only the well-known appearance in such cases; that which is commonly called "sentient", "sensible", or "sensational". The remainder of the percept was found to be of the character that can best be called "notional", or "ideal". It is essentially of the same stuff as what Hume called "pure idea". Its matter may be said to be "represented"; or better "ideo-presented"; as opposed to actually or really presented.

§ 5. *Mental Quantity*

At this point we may perhaps most conveniently introduce some further aspects of knowledge which

constitute manners or modes of knowing, and which serve to invest this with a quantitative character. But these aspects, unlike all the other modes so far mentioned, have throughout psychological history excited little if any dispute. In fact they appear to have been overlooked. And yet some understanding of them seems very needful in order to illuminate many important topics, for example mental span, work curves, and mental measurements. Luckily, this neglectful attitude of the psychologist has not extended to the plain man.

First and foremost comes the character known as clearness, including its opposites known as obscurity, vagueness, and so forth. Clearness is something with which the plain man is thoroughly familiar. It is even well known to be not any constituent of information, but only a guise in which this makes its appearance. This much is obviously implied in the universal recognition that one and the same fact may be clear to some persons but unclear to others. Such a character we might have expected to find taken as the very centre of all science of cognition. Whereas in truth, save apparently with the Stoics, Occam, Suarez, Descartes, Locke, Wolff, Herbart, and Wundt, it has hardly ever been the subject of profound consideration. Baldwin's large dictionary of Philosophy and Psychology does not so much as mention it.

A difficult distinction to make in a cognition is that between its clearness and what may be called its intensity. Yet even this difference is not beyond the scope of the man in the street. He knows very well, for instance, that he can be intensely aware of an object looming through a fog although this object may be extremely unclear to him.

A further remark is that both the clearness and the intensity of a cognition lie between two extremes. At the one end lies the utter obscurity, which is tantamount

to no cognition at all. At the other end comes the perfection, perhaps unattainable, of a clarity or determinateness which is absolute. What is commonly called mental development would appear—so far as knowledge is concerned—to consist largely of progressive clarification. In a percept the greater part of the information, that according to the physiological stimulus would seem possible, actually remains so obscure and faint as to approximate to zero. Particularly affected by this narrowness of cognition would appear to be the perception of relations (Chapter XIII). Of these (as shown by mental tests) the amount that can be clearly grasped at one and the same moment is extremely small. In consequence, the way in which the determinateness and the intensity of a perception are distributed over the objective field may have a very great influence on its general appearance. Take for illustration the accompanying figure A.



A.

It can be seen, either as a three-peaked black area against a white ground, or else as a two-peaked white area against a black ground. What is the main difference? Introspection shows that in the former case there is a clear and intense knowledge of the relations of the dividing contour to the black area. In the other case, this knowledge fades, but there ensues conversely a clear and intense knowledge of the relations of the same contour to the white area.

Finally, let us add that, besides the clearness and the intensity, there are two more quantitative characters of cognitive process; namely, its speed and duration (including repetition). These are among the most familiar of all features of cognition. Yet, when the study of them is pushed home—as for instance in experiments on extremely high speeds and brief duration—problems

still arise plentifully enough.

Anyway, these four aspects of cognition (clearness, intensity, speed, and duration) would seem to constitute so many dimensions of perceptual activity. They may introduce measurements into mental process which are at least distantly analogous to those which length, time, and mass bring into physics.

However, they characterize, as said, only the manner or mode of the percept, not the information it conveys. Thus a man's perception of one and the same black spot may either be clear, intense, quick, and persistent, or else the reverse of any of these. And in this way the total experience in the two cases may become widely dissimilar. But the objective blackness of the spot still remains approximately constant.

§ 6. *Perceptual Grouping*

There is yet another way in which percepts may, whilst being the same in respect of fact presented, yet differ in mode of regard. This time the change is in the way that the constituents of the information are arrayed, assembled, or put together.

A well-known theory of synthesis has been advanced by Herbart under the titles of "complication" and "fusion" (Chapter XIV, p. 240). He taught that, when the items presented (*Vorstellungen*) are still below the threshold of consciousness, they remain separate from one another. But above the threshold, these same items become united.

> "In consciousness the items combine, and in two ways. Firstly, those which are not mutually opposed enter into complication" . . . "secondly, those which are opposed fuse together."

As an outstanding example of complication, he gives

the union of words and their meanings, where the synthesis goes so far, he says, that

> " seemingly, one thinks in words."

As a leading example of the fusion he quotes the linkage between items in mutual aesthetic relation, as the two tones of a musical chord.

Another and far more widely held doctrine of mental synthesis and analysis is involved in the notions of " concrete " and " abstract ". According to Herbart, the items of cognition pass from separateness to union. But in passing from the concrete to the abstract the reverse happens; an item previously united to its context is separated from this (see Chapter XVI). In either case, however, only the manner of presentation is changed, and not (essentially) the matter.

Closely akin to the preceding cases is that which has been already quoted from Meinong. He indicates that the presentation of relations may occur either without or with analysis (see Notes to Chapter XIII).

Nothing new in principle is involved when the mental process advances from merely presenting the items in separation to manipulating them separately. This obviously occurs in acts of comparison, when the perceiving person first focuses the one related term and then the other. Another example that once had some practical importance is that of a sailor looking out for submarines. He may either keep under simultaneous observation a comparatively wide area, or else he may focus on different small areas successively. The constituents of the information got in the latter way are the same as in the former (though of course clearer); but this time these constituents are presented separately.

Finally we will take an instance of peculiarly acute interest at the present day. It is that where the combination of the constituents is in large degree arbitrary

and fanciful. This has been finely demonstrated in the following figure of Schumann :

Of this, he says :

> " Often quite involuntarily I see the black squares arranged in groups of four each. And indeed I sometimes even see the whole table divided up into such groups, when my glance roves about and a continually new group is presented to my attention. At will, I can easily pick out by attention a larger square, consisting of three times three small square areas ; I can even split up this group again into many sub-divisions."

He remarks that :

> " the grouping depends wholly and completely on arbitrary choice (*Willkür*), and changes with extraordinary

Nevertheless, by a certain change in the figure :

> " one obtains a particular grouping which to start with always presents itself involuntarily and which is hard to alter by voluntary effort."

To demonstrate the case, he gives us the following figure:

Clearly enough, there is now a tendency to group the circles by fours. And this assemblage does not consist in any mere shift in the direction of attention. (Although it is very likely to be accompanied by some such shift.)

How then does such a tendency arise? In particular, does the grouping derive essentially from the intrinsic nature of the presented circles? Or is it, rather, imposed on them from some outside influence? Let us see.

In the first place, *if* the grouping by fours were really some rational consequence of the nature of the presented circles, it would not be *changeable*. But this it certainly is. We can at will, especially with a little practice, group quite otherwise than in the fours. True enough, there are narrow limits to the grouping that can be effected with a high degree of sensorial vividness. But this quality is only a matter of degree, and in general its significance is much open to dispute.

Even more convincing would appear to be the argument that, if the compulsory grouping were derived

rationally from the nature of the circles, then it should apply just as much to thought as to perception. But this it does not do; in the case of thought there is no compulsion at all; we can group the circles just as we please. Suppose them, for instance, to stand for a heritage of so many pieces of money. Then these can in thought—as in actual practice—be allotted to any different heirs in any groupings whatever.

We may conclude then—as Schumann appears to do himself—that the grouping demonstrated by him lies fundamentally in the manner or guise of the perceiving, not in the facts that are perceived. It brings with it no further information (save such as may result from any shift of "attention"). Essentially the grouping is of the kind indicated by the little word "and", when for instance we say "cabbages *and* kings". This relation is unique in that it can be created or destroyed at will, without affecting the things related. All other classes of relation do have their foundation in the nature of the things related and therefore, so long as the latter remain unchanged, will themselves be unchanged. Thus, if one blue is darker than another, then, so long as the two blues remain constant, nothing can possibly render it the lighter of the two. In this sense the relation of "and" is subjective; all other relations are objective. To this issue we shall come back in Chapters XXIII and XXIV.

There still remains to consider how all this phenomenon of grouping or assemblage can be explained. Take first the voluntary kind. For what motive or ground does a man in ordinary life group different things together? In general, we may fairly say, when such grouping is convenient. And this will usually happen when these different things are going to undergo the same treatment. Thus, having found a quantity of blackberries, a person may naturally enough put into a separate basket those which he is keeping for a particular friend.

What, then, about the grouping that takes place involuntarily? This, too, might well be expected to follow lines of general utility (by virtue either of practice or of inheritance). We might thus surmise that the spontaneous grouping of Schumann's circles is in good conformity with probable situations of ordinary life. And indeed such situations can be found abundantly enough. For instance, the circles might represent so many rivets fastening together metal plates. Then each four might be intended to fasten down one and the same plate. And this, surely, would supply good enough ground for bringing the four together, mentally as well as physically.

However, be the ground for the grouping what it may, the two things must never be confused with one another. The grouping is a fact that can actually be observed, whereas the ground is a more or less dubious hypothesis. On the other hand, the grouping is subjective, whereas the ground is usually something objective.

§ 7. *Upshot*

In the preceding chapter we have considered the fact —perhaps never before taken in its generality—that all cognition, and in particular sensory perception, has two widely different aspects. The one is the matter or fact regarded, whereas the other is the way of regarding it. The former may be called objective, the latter subjective.

Among the problems for which this distinction is vital have been specially mentioned the theory of Acts and Objects, that of Vicarious Images, and that of Perceptual Meaning.

Further applications have been made to the contrast between sensing and imagining, as also to the topic of mental quantity.

Lastly, we have discussed the intriguing case of Perceptual Grouping.

CHAPTER XVI

THOUGHT

§ 1. Archetype and Copies. § 2. Generalization by Abstraction. § 3. Substitution of Words. § 4. Function of Images § 5 Other Surrogates for Thought. § 6. Solution of Transcendence § 7 "Mixing the Ideas" § 8. Belief. § 9 Grammar § 10. Deduction § 11. Induction. § 12 Memory. § 13 Imagination and further Cognitive Complexes. § 14 Upshot.

§ 1. *Archetype and Copies*

Whether or not any of the analyses recorded in the last three chapters covers adequately the ground of perception, they at any rate fail to exhaust that of all knowledge or cognition. Over and above the faculty of sensory perception (*αἴσθησις*)—and as the sole prerogative of Man—Aristotle set up a further one by which

> "the mind knows and thinks."

But about this further faculty of "thinking" many fundamental questions arise. What is its essential nature? How shall we mark out its frontiers? Where, if at all, lies a definite boundary between it and sensory perception? Also, where is any between it and the faculties considered by us earlier (Chapters V-IX)? Again, in what way shall we set forth its fundamental unity; bringing together the numerous Greek and Latin terms for which "thought" has been offered as a translation (Chapter V)?

By such problems, our analysis of mind will here again in the case of thought, as before in that of sensory per-

ception, be made the straightforward continuation of our earlier treatment of the faculties.

As classically conceived, and as set forth in Chapter V, the cognitive faculty of thinking dealt solely and exclusively with those marvellous things, the "universal ideas". But in the common usage of speech, this cleavage is at any rate not so sharp. As seen in the preceding chapter, even sensory perception in the ordinary acceptance of the term is permeated with such ideas. Conversely, even what is usually termed "thought" can quite well handle all that is most concrete and particular. For example, a man is said to "think" not only about a wife in general, but also about his own wife in particular.

On the whole, however, it seems true enough that thought, even as ordinarily conceived, is at any rate distinguished from sensory perception by the fact of universal ideas playing a far more conspicuous part in the former. Accordingly, we must needs consider carefully how these ideas are constituted.

Now, the character which has attracted the most intense interest in such an idea is that throughout all its indefinitely numerous and varying actualizations, it itself remains changelessly one and the same. For instance, there may happen to live any number of more or less different "men", but there is only one idea of "man" (or of "manhood"). All this, indeed, never troubles common sense. But for philosophers it has been a terrible stumbling-block. How shall that which is One be Many, or vice versa?

The first great explanation offered for this mystery of One in Many was supplied by Plato. The idea itself was taken by him to be an eternally and unchangingly existing One Real Being. But it could serve, he said, as an archetype from which all the multitudinous things of the sense world could thereafter be copied. There was, in fact, a sort of mass production. And Plato

proceeded to make curious comparisons between the two, archetype and copy, instancing geometrical figures, such as a line or a square. A man's vision, he said, presents to him a figure that is particular and faulty; but his intellect deals with a figure that is instead universal and perfect.

Even in his own day, however, these universal ideas of his met with strong opposition. Once when he was setting forth the derivation of tables and cups from the ideas of "tableness" and "cupness" respectively, he was interrupted by Diogenes saying, "I, O Plato, see only a table and a cup; I see no tableness or cupness". Plato answered him, "That is natural enough, for you have eyes, by which a cup and a table are contemplated; you have not intellect, by which tableness and cupness are seen". Thus Plato got the laugh. But the common sense would seem to have remained on the side of Diogenes. In a familiar jest, "intelligible" is said to be the philosopher's name for the *un*intelligible.

Later on, the doctrine gave rise to most acute discussion and controversy for over four hundred years. But then, on the advent of the Renaissance, psychologists ceased to trouble themselves about it any more.

§ 2. *Generalization by Abstraction*

The second great explanation proffered lay much closer to common sense. A universal idea is simply something shared by an indefinitely large *class* of percepts or images. It is thus a "general" idea. It is presented to mind separately from the other constituents of the images by means of an act of "abstraction". The characteristic of this is to keep in consciousness items which are common to the whole class, and to drop those which vary from one member of it to another. This abstraction is accordingly something negative; it is no

enrichment, but only a privation. It involves no special principle beyond the fundamental view of mental content as being capable of disappearing (see Chapter XIV, mental magnitude).

When and by whom this doctrine was first announced is hard to say. Already in the later Middle Ages it had been weighed and found wanting. The post-Schoolman Suarez roundly says of it :

" to think this is puerile."

He himself admits indeed that the idea or " species " presents the same object as the images do, but claims that it accomplishes this

" in a certain spiritual mode " (*modo quodam spirituali*).

Still, this blow to the doctrine of privation was by no means fatal. A hundred years later it blooms vigorously with Campanella, who writes :

" Abstraction does not become universal by any active virtue, but only by the languidness of the particular cases."

So too in comparatively modern times Rosmini summarily asserts that

"Abstraction does not create, but only sets apart."

Here, however, the suggestion arises that not only the privative theory, but even its amendment by Suarez, fails to account for Plato's chief argument; namely, that the idea is perfect whereas the percepts and images are always more or less imperfect. Suppose anyone wanted to prove some theorem about a straight line. He derives much assistance from actually drawing one. But does he draw it quite straight? Impossible! He does not even greatly care to do so. But for his argument he does conceive it as straight to perfection.

Not on these lines, however, did the theory of

abstraction actually come to grief among psychologists. The act of abstracting, instead of being glorified by them as something far more than mere privation, was repudiated as a sheer impossibility. Locke himself had depicted abstraction as passing strange :

> " Does it not require some pains and skill to form the general idea of a triangle (which is yet none of the most abstract, comprehensive and difficult) ? For it must be neither oblique nor rectangle, neither equilateral, equicrural, nor scalenon, but *all and none* of these at once."

After this outburst, we need hardly be astonished that soon another writer, Berkeley, came along with yet more profound incredulousness :

> " Whether others have this wonderful faculty of abstracting their ideas, they best can tell. For myself, I cannot by any effort conceive the abstract idea above described (Locke's triangle). I deny that I can conceive separately those qualities which it is impossible should exist so separated."

Recently, however, the whole problem as to the nature of abstraction and generalization has been lifted out of the sphere of excogitation into that of experiment. Outstanding workers have been T. V. Moore, Aveling, and English. The processes involved have been shown to be none other than those which govern all knowledge whatever (see especially Chapter XXXIV).

In particular, the process of idealizing has been recently illuminated in some experiments of Aveling and Stevanović. The subjects, after looking at several diagrams involving some common feature, suddenly found themselves able to construct further instances of this feature that were more perfect than any they had actually seen. Valuable confirmatory work has come from Krueger and Sander. We may conclude that the idea differs from the percept or image, not only in its " spiritual mode ", but even to some extent in its matter.

It would appear to be essentially creative. And this fact has to be duly taken into account by any psychological science worthy of the name. We shall return to this point subsequently (Chapter XXXIV on Noegenesis).

§ 3. *Substitution of Words*

Besides making all this disturbance about the "One in Many", the ideas would appear to have another character which has influenced their psychological treatment, if less violently, at any rate still more lastingly. Moreover, this further trouble affects not only these ideas, but the whole of thought in its broader sense which includes all knowledge other than perceptual. We meet here once again the baffling character of *transcendence*. Whereas perception deals only with what is present, thought claims to overleap this limitation and to deal also with the absent. That thought does so appears to the plain man both obvious and natural. But to the cogitating philosophers and psychologists it is a miracle in desperate need of being explained away.

Now, the earliest and perhaps the greatest of the explanatory attempts has sought salvation in identifying thought with *words*.

Many of the earliest philosophers threw together ideas and words almost indiscriminately under the title and concept of " logos ". Even Plato, despite his Cratylus, seems to have got little further ; for him, thought is but speech conducted in silence :

> " Are not then thought (*διάνοια*) and discourse (*λόγος*) the same, except that the former, being within the soul a voiceless dialogue with itself (*διάλογος, ἄνευ φωνῆς*), is called by us the name of thought."

And there is not much to show that here Aristotle went far ahead of his master. But the Stoics do seem

to have achieved a clear distinction between words and their meaning.

The next great move in psychology, however, was not any further advance, but rather a retreat.

When Roscelin so successfully combated the existence of the Platonic ideas, what he offered in their place was bare words; that is to say, nothing but aggregates of sensation, or mere "blowing of the voice". He was giving to the world—this time, explicitly—the doctrine of Nominalism.

And much later, when Berkeley, too, so sweepingly rejected all general ideas, his alternative was still the same. The simple fact, he said, is that we employ a single word to denote numerous things. He is thus back at Nominalism once more.

And such a doctrine, or some approach to it, has remained a hardy recurrent down to the present day, its latest rebirth having been achieved by the midwifery of the behaviourists.

On the other hand, besides having but a poor reception from common sense, this nominalistic view has been unkindly treated by experimental research. Time and again, such investigators as K. Bühler have shown introspectively that the verbal elements entering into thought may be—in fact usually are—very scarce and fragmentary. In one experiment, for example, the stimulus consisted of the sentence: "To fructify the past and to create the future, let that be my present". The reaction of the subject was the following thought but *wordless*: "That is a good task for the future".

§ 4. *Function of Images*

But rivalling, if not surpassing, even language in its power to assist thinking stands, according to many authorities, what is known as mental imagery. This had

already been treated in detail by Aristotle (see Chapter IX). The power to form images was formally described by him as

> " that faculty in respect of which we say an image or mental picture presents itself before us."

He also calls it

> " a movement resulting from the actual operation of the faculty of sense."

Modern authorities seek to better this by describing an image as

> " The mental scheme in which sensations or the sensory elements of a perception (or earlier image) are revived."

Now, Plato seems to have held that reasoning was able to proceed without the service of these images. But not so Aristotle. The latter represented them as mediating between perception and conception (ὑπόληψις). While imagination does not come into existence independently of sense-perception, he wrote, conception is not found without the aid of imagination. Many a century afterwards, a kindred doctrine was notably espoused by Spinoza. In more modern days its adherents have been numerous, authoritative, and very confident.

Indeed it has found quite remarkable support in the analogy presented by Galton's composite photographs, wherein the superposed printing of portraits of many different persons belonging to the same general class results in a single portrait of a person typical of that class.

On the other hand, the doctrine of images, like that of words, has been ill received by experimental research. In the brilliant work of Marbe, K. Bühler, T. V. Moore, Aveling, L. Martin, and English—to mention a few out of many—thought was found to be sharply distinguishable from, and even to a large extent unaccompanied by, anything of the nature of mental pictures.

§ 5. *Other Surrogates for Thought*

But the downfall of both nominalism and "imagism" did not, and could not be expected to, bring the age-long controversy to a close. No amount of actual observation could shake, or even reach, views based on philosophical intuition. Bühler himself concluded his wealth of experimental discoveries by throwing them all overboard. He wrote:

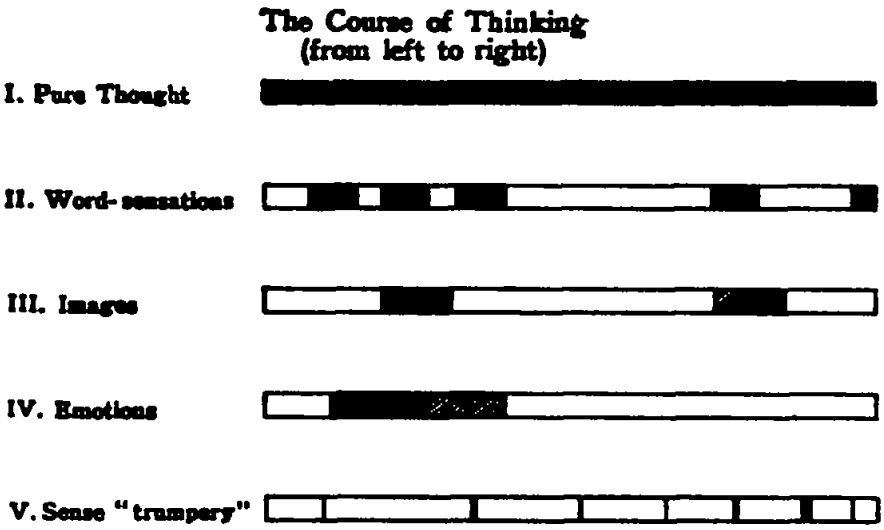
> "What I know about objects I know in and through modification of my consciousness. That is a self-evident proposition. The notion of anything that reaches outside itself contains just as much contradiction in the domain of mental actuality as anywhere else. The problem of transcendence is not, as supposed, a central problem for the psychology of thought. It is no psychological problem at all."

On some such grounds, it would seem, a large proportion of the psychologists who try to explain the process of thinking are fixedly bent on doing this by means of some sort of "modification of consciousness". And if neither words nor images will serve this purpose, then they resolutely seek for some other sort of modification, which they hope will be more effective.

One such possibility has been found in the emotional experiences discovered by Marbe, designated as "conscious attitudes" (*Bewusstseinslagen*) and described more particularly as states of doubt, uneasiness, difficulty, uncertainty, hesitation, vacillation, incapacity, and so forth.

But this is a hard saying. Take the instance where the experimental subject himself describes his experience as a thought about "the future". With what possible right can any other persons come along and describe this very same experience (not their own), as something totally different, a mere "state of doubt"?

But even more masterful have been those who would transmute a reported experience of the thought "I ought to know that" into nothing but "organic sensation and disagreeable feeling". By such psychologists, all thought whatever—from the highest moral valuations down to chronicles of small beer—is identified with such things as "delicately adjusted strains and tensions in the muscles of the chest, neck, and face", or with "a twitch in the finger, organic sensation, and catching of breath", or even with "the merest chaff and trumpery



of consciousness—the feeling of some momentary tension of the skin, or twitch of a muscle". Surely the departure from common sense has here reached its zenith.

Thus all these four kinds of mental content—word-sensations, images, emotions, and "trumpery"—seem to have entirely failed to supply anything like an adequate account of thought. We turn, then, expectantly to yet a fifth kind that has been discovered; notably by T. V. Moore and by a band of workers inspired by Külpe. This sort of mental content has been called "imageless" thought, but in truth it would appear to be also wordless, emotionless, and "trumperyless". It can in fact be designated "pure thought". In

texture it is essentially similar to Hume's " pure idea " ; also to the " ideo-presentation " which we met in sensory perception (Chapter XV). All are symbolized in the preceding figures, which represent a typical few minutes of thought, the occurrence of each kind of constituent being indicated on a separate line. In this instance, the pure thought was nearly continuous; the word-sensations, only occasional; the images rarer still; the emotions rarest of all, but of considerable duration. The " trumpery " was most fleeting and irregular.

§ 6. *Solution of Transcendence*

Now, in what way, if at all, does the preceding analysis of thought bear on the great problem of the ages, that of transcendence? How does a person ever manage to think of anything external? Seemingly intelligible enough is that the stimulation from light, sound, and so forth, should produce in anybody present experiences. But how from states of himself does he ever manage to arrive at any notion of anything outside himself?

Faced by this problem, the first four kinds of mental content seem to be quite helpless; word-sensations, images, emotions, and " trumpery " appear by their essential natures to be present experiences wholly and solely. But this limitation is at any rate less obvious in the case of the " pure " thought. Thinking—the plain man would say—is indeed a present experience; but this fact does not imply that it is always *about* present experiences; on the contrary, its most essential mission is to deal with things past or to come. Granting, however, that such transcendence is quite possible, we still need some explanation of how it happens.

One answer has been that given by Berkeley, namely, that the perception and even conception of

external bodies is nothing but an "illusion"; an explanation that does not seem to take us very far.

A little more definite is the remark of Hume:

> "One often observes that the mind has a great tendency to project oneself onto the objects of the outer world."

Subsequently great play was made by Avenarius with the idea of some mysterious "introjection", a process by which a person's experiences become split into two portions or aspects: self and environment.

But later on we shall find that really the transcendence can be explained by the ordinary fundamental laws of cognition (Chapter XXXIV).

§ 7. "*Mixing the Ideas*"

We have been considering the five different strands of which each idea is or may be constituted. Let us turn to the combination of one idea with another.

A mere sequence of ideas, said Plato, is not enough to constitute thought. Account must also be taken of how such elements "mix" with each other (μῖξις εἰδῶν). Aristotle, taking up the cry, asserted:

> "With regard then to the exercise of reason, the thinking of isolated single terms falls within a sphere in which there is no falsity; when, on the other hand, we find both falsity and truth, there we reach a certain combination of ideas as constituting one conception."

In comparatively modern times, the simplest case of such "mixture", namely, that of only two ideas, has come to be designated as a "judgment" (*judicium*, *jugement*, *Urteil*). Under this name, it has become one of the most familiar concepts even of common sense. But trouble begins on proceeding to details. With what sort of cement, or agglutination, shall this "mixing" be supposed to be carried into effect? Aristotle himself

picturesquely, but not very informatively, describes the union by citing the following passage from Empedocles :

> " Many there were whose heads grew up neckless entirely, but were afterwards brought together by friendship."

A still older but more helpful doctrine—assumed rather than definitely stated—has been that the two ideas cohere together by virtue of really being one and the same. On this assumption, for instance, the proposition that " S is P " really asserts that S and P are identical.

In this view it was, however, that the sophists saw their great chance. Antisthenes proceeded to amaze the world by proving that all propositions whatever are either false or empty. Take, for example, " man is good ". This, he said, is palpably false, because " man " is one thing and " good " is another. All that can be validly affirmed is such a vacuous iteration as " man is man ", or " good is good ".

Nor is all this quite so silly as common sense might take it to be. In very truth, a large number of judgments do essentially consist in no more than identifying one thing with another. Upon such identifications was really built up—as we shall see presently—the wonderful logic of Aristotle and the Scholastics, not to mention that of Port Royal. Indeed, identifications of this kind have taken the leading role in the highest flights of philosophy. Did not Kant maintain that the whole scope of genuine human knowledge was limited to such propositions as " a triangle has three angles " ? And does not this after all only mean that a figure which has three angles does have three angles ?

But the cohesion or " mixing " of ideas has also been regarded in another fashion. Instead of bare identity, it has been credited with a far broader basis. Knowledge has been taken to be constituted of ideas linked together

by *any presented relation*, be this that of identity, cause, place, time, or otherwise.

Indications of some such view may be found already in the writings of the Stoics. With Locke (as we saw in Chapter XIII) and Malebranche it came to fairly definite expression. But thereafter it seems to have attracted sparse following; and indeed, the whole concept of relation has nowadays fallen into extraordinary disuse and discredit.

As for the general interest in the combining of ideas, this after Locke's day wandered elsewhere. We come upon the flutter caused in the dovecot of the psychologists by the great swoop of Hartley. As proclaimed by him and his following, the combination of ideas in knowledge consists of nothing more than an "irresistible association". In other words, the ideas go together just because they do so.

To this outline of the chief doctrines which explain why knowledge necessarily involves more than one idea, we may add a bare mention of the fact that there have been and still are authorities who reject the necessity itself. They deny that a judgment of truth or falsehood *always* involves more than a single idea. In refutation, they bring the numerous cases of the so-called "existential" judgment, as "God is". But hereby hangs a tale far too long for present consideration.

§ 8. *Belief*

Whether or not, however, a judgment requires at least two ideas, it seems at any rate to need the further constituent that sometimes goes by the name of "belief". This requirement has already been encountered by us in the psychology of Brentano, who takes belief—in thought, as in perception—to constitute one of the three great faculties of the human mind.

But here once more we have a topic that is extremely ancient and no less controversial. In particular, it would seem to have dominated the "patristic" ages which preceded the scholastic.

Perhaps the most vital issue about a belief is as to whether it rests on insight (self-evidence); in technical language, whether the proposition is "apodeictic" (beyond all contradiction). The case of insight is described as follows by Locke:

> "The mind . . . certainly perceives, and is undoubtedly satisfied of, the agreement or disagreement of any ideas"

The other kind of belief which is *not* founded on evidence occurs, according to Locke, in

> "judgment, which is the putting ideas together, or separating them from one another, in the mind, when their certain agreement or disagreement is not perceived, but presumed to be so."

In this distinction philosophers have shown the liveliest interest. But psychologists have almost ignored it. And as to whether this policy was right or wrong is a grave question. It was dictated by an only too natural fear of getting entangled in hopeless metaphysics. Very numerous questions have arisen which show little prospect of scientific fruitfulness. Are belief and insight two concurrent processes, or only two different aspects of one and the same? Are they relations between the terms in the proposition, or are they qualities of the proposition as a whole? Such questions are by no means senseless. But their discussion does seem—under present conditions—unlikely to further scientific progress.

Nor does much fruit appear to have sprung from the work of those who have busied themselves with deciding whether belief is by nature intellectual or emotional; whether it should or should not be entitled "a feeling of validity" or "a sentiment of conviction". Scanty has

even been so far the harvest derived from the once copious literature as to how far thought, and in particular belief, involves volition. Often the discussion has taken the line of disputing as to which is prior, the Intellect or the Will. On the former side have been ranged the Stoics, Aquinas, and Spinoza. On the latter, Bonaventura, Duns Scotus, Descartes, and Malebranche. And little profit has been made from such suggestions as that belief consists in "a sense of reality". Incidentally we may recall the statement of James, that an enhancement of this "sense" is "one of the charms of drunkenness".

But freely granting all these and other troubles into which the topic is only too likely to lead, may not its total omission be an evil greater still? By such an omission, a psychology is offered which claims to deal with such things as learning and delusion, but yet which furnishes no account of evidence, or even of error; one which would give an account of knowledge, but without studying its dependence on trying to know.

In this critical situation, psychology seems to have good ground for congratulation that at least a few of its exponents have not only ventured to approach some of these dangerous topics, but have done so experimentally and with conspicuous success (Aveling, Bühler, Stevanović, Menon). Fruits of their labours will be met by us later on.

§ 9. *Grammar*

But we have only been looking at the mixing of ideas in its simplest case, where these are but two in number, the case that has in modern times been called a judgment. Let us pass on to where the mixed ideas are more numerous.

Such complex structures of thought fall into numerous types, as reasoning, narrative, exposition, conversation,

and so forth. But here, curiously enough, psychology seems almost to desert us. To find any elaborate analysis we have to turn, if not to philosophy, at any rate to grammar or to logic.

Anent the grammatical analysis, this from the palmy days of Alexandria has been a much favoured topic of study. Many and ponderous have been the tomes devoted to linguistic morphology and syntax, to parts of speech, to sentences simple and compound, and to a host of kindred topics. But the few writers who did seriously try to make philology and psychology assist each other were hampered by ignorance of one of these (or of both). A new era in this respect would appear to have dawned with the work of Ballard. By his fundamental analysis of discourse into " units " of " predication " " full-blown " or only " half-blown "—the elementary units being integrated into others of increasingly high order—by this analysis philology and psychology become as two lamps each illuminating both fields.

We may notice, too, that all such organization into units—predications, sentences, clauses, and so forth—does not concern the facts expressed, but only the manner or mode of expressing them. And this mode is determined, not by logical necessity but by practicable convenience. In consequence, it is essentially unstable. Take for instance a " sentence ". This is commonly taken to express a " complete thought "—something within fixed limits. But Ballard picks randomly out of a book the following sentence: *This was denied him.* Still keeping within the limits of a single sentence—and therefore presumably of one single " complete thought " —he can make the purport more and more elaborate. He can expand it into, *To die was denied to Byron.* Or even into, *The sole uttered wish of Byron to die sword in hand was denied to this dying man.* And there seems to be no difficulty in any degree of yet further expansion.

Clearly, then, the limits to the scope of a single sentence are not fixed and objective but variable and subjective.

§ 10. *Deduction*

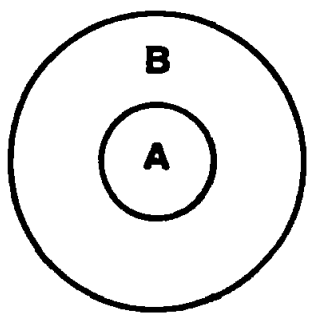
As for the other chief science involving complex thought, namely, the science of logic or inference, this in ancient times was inextricably mixed up with something quite different. Under such names as "reason" was commonly denoted, not only inference itself, but also that intuitive knowledge which supplies—or is supposed to supply—inference with its ultimate foundation.

So soon as inference began to be extricated from other things, it was resolved into two different directions of procedure. Plato, following Socrates, distinguished between, on the one hand, the rational movement from the less to the more general, and, on the other hand, that from the more general to the less so. Aristotle, with greater exactitude, distinguished deduction (syllogism) from induction (epagoge).

As regards deduction, everyone knows that its analysis has produced the following typical scheme, called a syllogism:

All men are mortal (major premise).
Socrates is a man (minor premise).
Therefore Socrates is mortal (conclusion).

And Aristotle advanced along these lines to such a pitch of perfection that few if any undisputed essential additions have been contrived ever since. Perhaps the most remarkable, though still subordinate, later contribution to the syllogism was its representation by Euler geometrically. Let the space A stand for the species man, whilst the space B is the



genus mortal. Then since Socrates is inside A, he must *a fortiori* be inside B.

So much for standard form of deduction as set forth by the logicians.

But we have yet to ask whether this is really the standard of form of thinking as actually recorded by psychologists. And the answer would appear to be in the negative. Experiment has shown the actual operation to be vastly more complex, besides being extremely changeable. Nevertheless, its constitution invariably turns out to be always of the same general form as we have already found in the case of perception, of thought, of grammar, of logic, of all cognition. Throughout, that is to say, we encounter ideas " mixed ", to use the word of Plato, by virtue of relations.

However, we must not omit to add that this whole deductive procedure (verbal and geometrical alike) suffers from the fundamental defect that it never proves anything finally, but only shifts the burden of proof from the conclusion to the premises ; from less general propositions to more general ones. Where, then, are we expected to find a satisfactory halting-place ? How shall we ever sustain those propositions that are the most general of all, and therefore cannot possibly be supported by any that are more so? In short, where shall we come to rest in First Principles? To determine them is a task primarily, no doubt, for the logician. But even on the psychologists the duty is incumbent, if not to discover or justify them, at least to accept them from the logicians and proceed to study their habitation and constitution. An answer about these questions will, it is hoped, be given in Chapter XXXI.

§ 11. *Induction*

The preceding lack of finality brings us—according to some authorities, at any rate—to the other great in-

ferential procedure. Here, reversely, the mental movement is from the particular, or at least the less general, to the more general. Suppose a person makes several drawings from a bag of balls, and every time finds them to be white. He proceeds somehow to "induce" that *all* the balls are white. Here, then, would appear to lie a First Principle, such as we needed to render any reasoning final.

But who shall guarantee this amazing Principle itself? Who is to watch the watchers? On such score some authorities are surprisingly at ease. Reid writes:

> "Every man is a competent judge. . . . To judge of first principles requires no more than a sound mind. . . The learned and the unlearned, the philosopher and the day-labourer, are upon a level."

Anyway, to find excuses for such a principle devolves properly on the philosophical "epistemologist". As psychologists we have only to ask how its operation is constituted. What does actually happen in consciousness when we pass from seeing the colour of a certain number of balls to inferring that of others? Any seriously documented analysis of this mental transaction appears to be not as yet forthcoming.

§ 12. *Memory*

From the constitution of inference, deductive and inductive, we may pass on to that of memory. Once more, we have to see what fundamental improvements psychology has eventually succeeded in adding to the crude analysis involved in the ancient though still persistent doctrine of faculties. And the outlook seems favourable. To the analysis of memory, far more than to that of inference, psychologists in all ages have devoted their most strenuous efforts.

As the first great fruit of the analysis, we may take

the statement made already by Aristotle, that a remembrance includes an idea of *time*. He writes repeatedly and very explicitly as follows:

> "Always, when in the act of memory, as already said, we remember that we have heard or seen or learned this thing, we are conscious also that it was prior; now prior and posterior are distinctions in time."

Nevertheless this same author concludes this same publication by defining memory in terms from which the awareness of time is completely absent. It is replaced by the notion of copying, which essentially involves retention and reproduction but no awareness of time whatever. He writes:

> "This is our account of memory and the act of remembering; it is the permanence of an image regarded as the copy of the thing it images."

Shall we say that a footprint remembers the foot which made it?

And this confusion of subjective awareness and objective retention seems to have persisted, and even been augmented, to this day. Hering's famous paper "On Memory as a Universal Function of Organized Matter" (1870) leaves the awareness of time wholly out of account. Bergson twenty-six years later (as we saw in Chapter IX) has to concentrate his efforts on proving, as a generally unrecognized fact, that past-awareness and reproduction are two different things. Such recent and careful work as that of Edgell still seems to identify remembrance, not merely with reproduction, but even more generally with

> "retentiveness, in virtue of which the present process is weighted by those which have preceded."

Still later F. C. Bartlett has to describe—though with disapproval—"all conventional theories of memory"

as dealing with "traces having only the capacity of being re-excited".

To common sense, however—and perhaps at bottom to everybody—*both* things exist. On the one hand, a person's mental awareness of his own past, and on the other, certain "traces", mental or physical, that admit of being re-excited. But common sense does not seem to recommend that two such disparate things should be muddled together under one and the same name. And by unalienable prescriptive right, the name of "memory" belongs properly to the awareness, *not* to the "trace".

Having thus distinguished mere retaining and reproducing (see Chapters XXVIII-XXX) from the peculiar experience of remembering, analysis is in a better position to make a further distinction, this time inside the sphere of remembrance. It is the very ancient but nevertheless very persistent distinction made between the following two cases. In the one (Greek, *μνήμη*) a person simply

> "remembers by being conscious of the experience from the start."

In the other (Greek, *ἀνάμνησις*) he

> "recollects by virtue of an act . . . a hunt."

This recollective procedure is generally taken to be of the nature of an inference, and so to be explicable readily enough. But the simple or direct remembrance has proved to involve problems of great difficulty.

One of these which has excited much inquiry and discussion is as to the presence (and function) of "imagery". Here is a point on which, after thousands of unprogressive years, the modern experimental procedure does seem to have thrown great illumination. Instances are the researches of Henderson, Henmon, and Bartlett. On the whole, the operation of remembering has been

shown to contain all the five constituents of thought in general (p. 277). The following is a relevant experiment done by J. O. Edwards:

> "A maze was drawn in pencil and a path marked on it in ink. The subject was then shown the maze and told to trace the path from the beginning to the end with a blunt pencil (slowly). About a minute afterwards he was asked to remember the path he had taken, sometimes with and sometimes without the aid of a duplicate maze with no path marked on it."

Here is a typical extract from the introspection of one of the subjects:

> "Immediately after threading the maze, I find in my cognitive field an awareness of the whole experience. This awareness somehow comprehends as one single cognitive object an experience which actually had, and is still represented as having had, a duration of time. This awareness may be likened to a view of a retreating shore, in that it shows only the larger features . . . When I try to describe this comprehensive awareness I find much difficulty. It certainly is not an 'image' as I understand the word; for an image always represents something as existing *now*. Still less is it a sequence of images, for, as said, it comprehends the whole duration simultaneously. I can find no more apt description than as being a 'notional' awareness."

Another and still more fundamental feature of memory which modern experiment has managed to clarify is what has been called its "primary integration". Research has shown that any experience, throughout its course, is being continually woven into a more or less clear and systematic record, a sort of spontaneous autobiography. At any moment the person can, so to speak, turn and look at it.

Much less progress has been made by modern treatment of the great problem raised by Plotinus, namely, as to whether remembrance can possibly be unconscious.

This raises the question of unconscious mind in general, a matter which we have to consider subsequently (Chapter XXI). However, the extreme difficulty involved may be instanced by the special case of recognizing any object without consciously remembering it. So numerous have been the explanations offered of this case that they could be sorted out into fourteen general classes. And the choice between them still seems to make little headway.

Far more successful—probably because less fundamental—has been modern research into how a remembrance deviates from the original experience. Hobbes would appear to have remained at the stage of common sense when he wrote as follows:

> "There is in memory something like that which happens in looking upon things at a great distance; in which as the small parts are not discerned by reason of their remoteness; so in memory, many accidents and places and parts of things, which were formerly perceived by sense, are by length of time decayed and lost."

With these appropriate but more or less vague metaphors may be compared the precise "law of convergence" established by G. E. Müller:

> "When presentations of different objects belonging to the same class of sensation become increasingly unclear, they in a certain manner converge towards a presentation unclear in the extreme."

For example, he finds that after memorizing meaningless syllables, the distinction is lost between the upper parts of the letters b, l, and t; a letter is remembered as having been b *or* l *or* t, that is to say *not* a, c, etc. At a later stage of forgetting, such upper projections as these become indistinguishable from the lower projections, g, p, and y; the letter may have been b or g, etc. Finally, a letter may be remembered so unclearly as to afford no

clue at all to its particular nature. He finds the same as regards colours; at one stage, red can no longer be distinguished from yellow, or yellow from green, or green from blue; at a later, all colours merge into one and the same misty appearance. Similarly, too, as regards sounds; thus, a person may be unable to say whether a vowel is an *o* or *u*, but be still confident that it is not as bright a sound as *e* or *i*.

Further analysis of the course of forgetting has revealed such features as "assimilation", "condensation", and "omissions of the unessential". Clearly, these results about normal life should have the greatest importance for the understanding of abnormal experiences such as have been reported by Freud and his followers.

To all the preceding main features discovered by analysis of memory may be added its intimate relation to consciousness of Self. Already Plotinus had remarked that the awareness of self was the foundation of memory. Something similar was afterwards said by Leibniz. So too subsequently Royer-Collard said that "I remember such a person" really means that "I remember having seen such a person".

Finally, our chronicle of the psychology of memory ought not to leave quite unmentioned the facile view put forward by Reid and his followers of the "Scotch school". He wrote:

> "Memory is an original faculty, given us by the Author of our being, of which we can give no account, but that we are so made."

§ 13. *Imagination and further Cognitive Complexes*

Of the great cognitive faculties, there is still one not yet considered by us in the light of the further analysis to which it has been submitted. This is "imagination". To this faculty, as we found, many different meanings

have been attached. But the dominant one has been that of all ability that is inventive, originative, or creative. By Aristotle this region was approached from three directions. One was that of dreams. But these he was mainly concerned to derive from movements in our bodily organs. He does little in respect of analysing their purport. Another line of approach he finds in the fine arts. These he at first seems to bring within the sphere of creativeness inasmuch as he adopts for them the name of "making" (*ποίησις*). But in his actual analysis—which is thorough—he seems to attribute them really to nothing more than imitation (*μίμησις*). Lastly, there was his "creative reason". But this he analysed so inadequately that it has ever since evoked the most widely different interpretations.

In later ages, the analysis of the purport of imagination has often been merely negative and by contrast with memory. This purport has been described as consisting of reproducts which do *not* involve the notion of past time, or maintain the original order, or generate belief.

A great advance on this meagre attainment was the further step, eloquently supported by Coleridge, of distinguishing the relatively passive and active kinds. The former, which has been called fancy, produces new combinations that are detached and sporadic, whereas the active kind is constructive and produces integral wholes.

At the present day, the analysis of the active kind of imagination would seem to have usually had little pursuit and less success. To get its facts, it has appealed to artists and inventors to explain how they went to work; and the more trustworthy of these could only reply that they did not know. And on such a basis authors have piled up theory upon theory, almost all of which are merely repetitions of what has been alternately affirmed and forgotten from the earliest times. Among the rare

exceptions to such sterility have been some experimental researches, notably those of Bullough, Paulsson (directed by Jaederholm), and Valentine.

With far more general vigour and fruitfulness has been studied the "passive" sort of imagination. The make-belief and free play of children; the daydreams of both them and adults; thinking of the so-called "autistic" sort that is sufficient unto itself and not subjected to any criticism; all these have been recently observed and recorded in the most industrious manner. And in them have been noted several phenomena of great importance, such as wish-fulfilment, self-projection, and the so-called feelings of inferiority.

This is as far as the available space will allow us to go in the analysis and synthesis of the structure of thought. The latter does, no doubt, become further organized into wholes of much more elaborate order. As such may be regarded every theory, every science; above all, "the science of sciences". The list can be indefinitely extended; including every book, essay, speech, discovery, and explanation. Each of these complexes, too, has an indefinite number of general qualities and properties. It may be "profound", "acute", "clear", "brilliant", "careful", "concise", and so forth; or else, in each case, the opposite. And besides all such complex-qualities, and properties referring to the contents of cognition, there are others that concern the cognitive acts. Such as "attentive", "absorbed", "taciturn". But all these terms are already familiar to the man in the street. And it is hard to see how mental science has here brought about any fundamental progress.

§ 14. *Upshot*

The descriptive analysis of thought recorded in the present chapter was first concerned with the efforts that

have been made to show how a general idea can be both One and Many. We considered the Platonic theory of Universals, which seems to have had its day. We examined the doctrine of Abstraction and Generalisation, and found it straightforward enough. And we touched on the conception of Ideals; this appeared to be essentially creative and, therefore, to call for careful treatment in the subsequent explanatory Part of this volume (Chapter XXXIX).

At somewhat greater length, we examined what has been done about the problem of transcendence; that is to say, how the mind ever manages to know, or even think of, anything other than its own actually present experience. In ancient times this interest was open and unabashed. But nowadays it generally works more underground, although none the less potently. Inspired by it, some authorities have brought themselves to advance such statements as that a thought of "duty" really consists in "disagreeable organic sensation", or that genuine knowledge is "one of the charms of drunkenness".

But others have preferred to accept blindfold the common-sense faith that thought *can* transcend its present experience. With Augustine, they roundly assert:

> "Without rejoicing I remember myself to have joyed; and without sorrow do I recollect my fear."

And yet others have, by diligent research, ascertained how this feat of transcendence may be actually achieved.

From the analysis of thought we proceeded to its synthesis. In particular we set forth the main teachings of psychology as to how ideas are "mixed" into judgments and then into structures of higher rank, such as those of grammar, deduction, induction, memory, and imagination. But to explain all this, to set forth how these enormously complex results can be derived from

very few fundamental laws, this is another task for the subsequent Part (D).

On the whole—in agreement with Chapter IV—we find that the general psychological interest in thought has nowadays sunk to a strangely low level as compared with its ancient dominance, and its seemingly still retained immense importance.

CHAPTER XVII

MENTAL DYNAMICS

§ 1 Discovery of "Orexis" § 2 Stoic "Horme" § 3 Schoolmen on Voluntary Action § 4 Plight of Language § 5 Confusion with Cognition § 6. Associationism Again § 7. Will as Motor Sensation § 8 Repudiation of Self-Control. § 9 Repudiation of Purpose § 10 Evidence of Experiment § 11 Mental and Physical Force § 12. "Activity" § 13. Upshot

§ 1. *Discovery of "Orexis"*

Now comes a great change of atmosphere. From the domain that consists of perceiving and thinking we pass over to that which involves feeling and acting. But still, as before, the attempted analysis into constituents shows itself to follow in logical sequence the more ancient partition into faculties. These were the products of a comparatively gross mental dissection; macro-anatomy, so to speak. Mental science could make no further headway without the more delicate manipulation of micro-anatomy, or, as it is often expressed, "elementary" analysis. As happened in the case of knowing, so here too in that of feeling and doing, the need was felt to scrutinize conscious experience more narrowly [and afterwards to integrate it more broadly].

A convenient starting point may be found with "orexis", which, as we saw, supplied one of the three great faculties of Aristotle, the other two being Sense and Intellect. For the analysing psychologist, then, arises the question as to how this orexis is constituted. When Aristotle introduced the term, what did he mean?

What had he really discovered?

Without, as it appears, formally defining it, he at any rate supplies us with several clues. First and foremost comes his choice of the term orexis, which literally signifies a stretching out; as of the hands, in entreaty. The very fact of his using an unfamiliar metaphor seems to indicate that what was meant did not already lie in the language of common sense. Moreover, his whole discussion of the matter, including his condemnation of the earlier faculties of Plato, shows that he supposed himself to have got hold of something decidedly novel.

But if so, how did he ever arrive at it, and how was he to communicate it to anybody else? There are two ways of doing this. The one, which Aristotle did not employ, is that of definition, where the unknown idea is generated out of others that are known. The second way, which he did employ, is to indicate positive cases where the unknown is present and negative cases where it is absent. Thus on the negative side, he implied that orexis does *not* consist in sense (*αἴσθησις*), reason (*διάνοια*), or even movement. For to these he allotted faculties of their own. But on the positive side he asserted that this new mental constituent does occur in all three members of the Platonic triad: these being "rational" (*λογιστικόν*), "spirited" (*θυμικόν*), and "appetitive" (*ἐπιθυμητικόν*).

Another conceivable help towards understanding what orexis was really intended to mean might lie in authoritative synonyms, particularly in translations into modern languages which are supposedly equipped with all the ideas accumulated through the ages. But in point of fact the current translation of orexis is only "desire" (German, *Begehren*); and *this* was no new idea even in Aristotle's day.

On the whole, then, we possess several clues as to the nature of what Aristotle had discovered in "orexis".

But there remains difficulty enough in finding any one version that satisfies them all. We cannot with any precision follow the common practice of translating the word as "desire". But we might perhaps define it as embracing all that essentially belongs to desiring (much as cognition embraces all that essentially belongs to knowing). In this way we arrive at tolerable agreement with the scheme presented in Chapter X, p. 173.

§ 2. *Stoic "Horme"*

However, the next philosophers to busy themselves intensively with the matter appear to have been the Stoics. To this pathetic group of ruminators the need of studying desire was even more imperative than to Plato. In his famous simile, anger, food, and sex were but unruly horses that carry man away from Heaven. For the Stoics, they were chains that keep men in Hell.

From the writings of Zeno and his followers—including the 705 books of Chrysippus—we gather that orexis was criticized by them as being not primary but only derivative. Taking it, apparently, in some such sense as "desire", they complained that it brought in the complication of referring to the future. Whereas in the simple primary case, when any good thing is at a man's disposal, he does not desire; he just takes. And the tendency to do this was called by the Stoics—as nowadays by Nunn and McDougall—the "horme" (Greek, ὁρμάω, I rouse, set in motion). Within the whole hormic operation, a further vital distinction was made between the action itself and preceding resolve or purpose to act.

The novelty of this doctrine lay not so much in any of the items enumerated, as rather in their systematic arrangement. Already common sense was very familiar with each of them separately. But it had not arranged them as together constituting one complete operation.

In Latin, an equivalent for the horme was found in "appetite" or "appetency". Unfortunately, these two words, particularly the former, have somehow acquired a special association with organic cravings. Among modern words more or less covering the same ground are "tendency", "impulse", "urge", "inclination", "propensity", and the German "*Trieb*". All these words, like horme itself, indicate some setting in motion. The word "motive" does so still more obviously. And yet actual movement is by the Stoics, no less than by Aristotle, emphatically excluded from the hormic experience. How should this paradox be resolved? Clearly the experience, if it is not movement itself, must at least be something specially connected therewith.

§ 3. *Schoolmen on Voluntary Action*

The next great actors in the scene were the Schoolmen. These set out with the fundamental question:

> "whether in human acts there is anything voluntary."

In reply, Aquinas bases himself on two main grounds. One is that "man knows the end of the work". The other is that he "moves himself", the movement being either bodily or else mental. On this double basis he answers the question affirmatively. Human voluntary action, he says, does actually occur. Thence he proceeds to scrutinize this action in detail. He inquires in what circumstances such acts of willing are realized, what the will wills, what moves it to will, and in what manner it is moved. His main conclusion is that the volition falls into two essentially distinct kinds, which are respectively "rational" and "sensitive". In the first case, the will is moved by the Intellect. In the second case, by the Sensitive Appetite; or, as it would nowadays

be called, by Impulse. He goes on to examine the nature of the chief voluntary acts, which he entitles "enjoyment", "intention", "choice", "counsel", "consent", and "use".

All these six give rise to further questions that emerge from the chief difficulties of, and seemingly discrepancies between, previous authorities. The following instances are typical. Is there anything voluntary in irrational animals? Can there be voluntariness without any act? Can violence be done to the will? Does ignorance cause involuntariness? Is volition of the end only, or also of the means? Is the will moved by the Intellect, by the Sensitive Appetite, by an Exterior Principle, or by Itself? Is Choice an act of Will or of Reason? Is the process of Counsel one of Analysis? Is consent directed to the End or to the Means? Is Use an act of the Will?

Now, the best friends of Scholasticism can scarcely deny that its handling of these topics seems to us moderns somewhat long-winded. Take for example the answer given to the question last mentioned:

> "It is the will which moves the souls' powers to their acts, and this is to apply them to operation. Hence it is evident that first and principal use belongs to the will as first mover; to the reason as directing; and to the other powers as executing the operation, which powers are compared to the will which applies them to act, as the instruments are compared to the principal agent."

But against this demerit of lengthiness must be set the virtue of unusual clarity. If anybody at the present day could be got to wade right through the preceding passage, and to consider all its bearings on the issues which then dominated philosophical interest, he might be surprised at its cogency and pregnancy.

A further characteristic of this scholastic treatment of voluntary action is that, after all its elaborate argumentation, it almost always eventually arrives at

remarkable agreement with common sense. Shall this issue be taken to indicate superficiality? Or shall it rather be attributed to sanity?

Be this as it may, the attempted improvements on the scholastic teaching have been not so much constructive as destructive. Their fundamental motive has not been to enrich psychology, or even to correct it, but almost solely to make it simpler. An account of the more important of these attempts will be given in the rest of this chapter.

§ 4. *Plight of Language*

At this point, however, we can no longer defer a grave admission. It is impossible not to subscribe to the indictment uttered by Hamilton:

> "The English language, unfortunately, does not afford us terms competent to express and discriminate, with even tolerable clearness and precision, these classes of phenomena."

Names are urgently required for at least the following four classes of mental process:

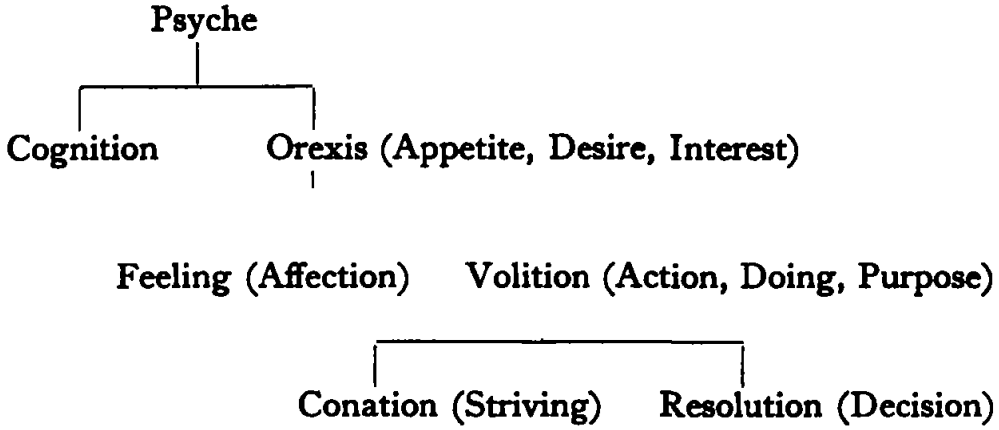
A. All other than Cognition. This is the greatest need and difficulty of all. There seems to be still nothing more suitable than Aristotle's *Orexis*. Other terms which have also been forced into this meaning are *Appetite*, *Desire*, and even *Interest*.

B. All other than Cognition and Feeling. Tolerable names for this are *Volition*, *Action*, *Doing*, *Purpose*. Hamilton tried to turn to this usage the "Conation" of Cudworth.

C. All that falls under the category of striving. Here, the choice is large. The best word perhaps is *Conation*.

D. The kind of volition commonly described as "making up one's mind". It may be called "*Resolution*" or "*Decision*".

In this manner we get the following table:



To this verbal usage, then, we shall so far as possible adhere in the present volume, noting that the present bisection of orexis cuts across that which was cited by us previously (Chapter X, p. 173). But it is hopeless to expect that this or any other usage of the words will be consistently maintained throughout psychological literature. Moreover, our own usage, it should be well understood, concerns only the meanings of the words, and does not touch the question as to whether such things really exist or not. In many cases the function of words is not primarily to answer questions, but to enable us to *ask* them.

§ 5. *Confusion with Cognition*

And hereby we are at once brought up against the psychological literature in which the very existence of volition, as something distinct from cognition, is explicitly or at least implicitly denied.

Even the Charioteer of Plato seems at times inclined to bring volition and cognition into a curious blend. Occasional passages of Descartes seem to point in a similar direction; as when he declares both volitions and passions to be species of thought. But much more definite are the words of Spinoza, who defines the will as

> " a faculty of affirming and denying, by which the mind affirms what is true and denies what is false."
>
> " Will and Intellect," he further says, " are one and the same."

In modern times we encounter the following assertion of Bastian :

> " The phenomena of volition are, therefore, not the work of any special faculty or mysterious entity. . . . They are merely certain exemplifications of intellect in action. . . . Anything separate to be known as the will is, in fact, a mere phantom—a kind of psychological ghost."

By what reasoning this well-known ethnologist could thus bring himself to scorn the faculty of " volition ", and yet in the same breath accept the quite analogous one of " intellect " is an intriguing problem.

On the whole, anyway, the preceding refusals to distinguish volition from cognition have had but little following. Almost every version has been confined to a single author with his immediate dependents. And even by him it has seldom been worked out elaborately or consistently.

§ 6. *Associationism Again*

A far more influential attempt to explain away the will, or any leading feature in it, has come with the doctrine of associationism. This doctrine has already been encountered by us on the cognitive side of the mind. Now we meet it again, but on the side of volition.

As usual the clearest exposition is that of Hartley :

> " If the associated motion, idea, or sensation follows that idea, or state of mind (i.e. set of compound vibratiuncles), which we term the will, directly, and without our perceiving the intervention of any idea, or of any sensation or motion, it may be called voluntary, in the highest sense of this word."

Again :

> " If it be found, upon careful and impartial inquiry, that the motions which occur every day in common life, and which follow the idea called the will, immediately or mediately, perfectly or imperfectly, do this, in proportion to the number and degree of strength in the associations, this will be sufficient authority for ascribing all which we call voluntary in actions to association, agreeably to the purport of this proposition. And this, I think, may be verified from facts."

As for the point that volition tends to seek pleasure rather than pain, this is at once accounted for :

> " The pleasures are much more numerous than the pains. Hence the motions which are subservient to them are much more numerous also."

Hume, however—despite his attributing to association the very idea of power—refused to credit to it the experience of willing :

> " By the *will*, I mean nothing *but the internal impression we feel and are conscious of, when we knowingly give rise to any new motion of our body, or new perception of our mind.* This impression . . . 'tis impossible to define, and needless to describe any farther."

Different again was the view of that intrepid associationist, James Mill, for whom

> " there appears no circumstance by which the cases called voluntary are distinguished from the involuntary, except that in the voluntary there exists a Desire."

And as for " desire ", this and the " idea of pleasurable sensation " " are respectively names for one and the same state of consciousness ".

§ 7. *Will as Motor Sensation*

Nowadays the theory which would attribute all mental process to association has greatly waned. But

in its place there are other grounds for opposing the idea of voluntary action. For such action does not readily harmonize with certain views current in physics, physiology, and biology: views which depict the organism as merely a distributing mechanism, receiving physical energy through its sensory receptors and returning it through its motor effectors. From such a standpoint, the only tenable psychology would seem to be that which represents all mental process as consisting of sensations. This doctrine has already been encountered by us on the cognitive side of the mind. We now meet it again on the side of volition.

In the van of its proponents stand the comparatively modern authors, Bain, Ribot, and to some extent even James and Wundt. The first kind of sensations favoured for their purpose were those which, allegedly, derived from "the outgoing discharges from the nervous system". When a person believes and reports himself to be moving voluntarily, what he really experiences, according to this theory, is nothing more than a consciousness of the innervation which runs down from his brain to his muscles. But with this attempted explanation we need not further dally. It has had the rare fate of being finally abandoned even by its own authors.

Very different, however, has been the lot of another sensist doctrine. For this has retained and even increased its vigorous following up to the present day. This time the sensations imagined to proceed from the outgoing motor nerves are replaced by those which derive from the motor organs. When a person believes himself to be exerting mental force, his experience is really limited to sensations in his muscles, tendons, and joint-surfaces. A supplementary view—due to Wundt—is that the consciousness of effort can be generated, not only by the actual excitement of the actual motor sensations, but equally well by remembrances or images of these.

Between these sensists and their opponents there has been battle on many and various fields. Nearest to hand was that of simple introspection. Thus James claimed that when we look for the alleged feeling of innervation (stimulation of some organ by its nerves)

> " we find that we have really got a peripheral feeling or image instead."

Another attempted line of evidence has been by way of make-believe. A celebrated writing of Ferrier ran as follows :

> " If the reader will extend his right arm and hold his forefinger in the position required for pulling the trigger of a pistol, he may without actually moving his finger, but simply making believe, experience a consciousness of energy put forth."

But if now, he asserted, the respiratory muscles are relaxed, then the consciousness of energy ceases. Ergo, this consciousness derives from the respiratory muscular sensations.

Another region from which evidence has been eagerly sought is that of pathology. In some relevant cases, there is a vivid awareness of effort to move, although the intended limb does not move at all. In other cases, the person can under ordinary conditions actually make the movement, but if the limb be restrained by some unseen obstacle, he none the less believes that the movement is occurring. The interpretation of these pathological observations has given rise to lively controversies—especially between James and Wundt—but no general agreement.

Anyway, there still remain not a few authoritative psychologists by whom the sensist doctrine is confidently upheld. For these, it would seem, the difference between shooting anyone accidentally and doing so voluntarily amounts to no more than that the shooter in the latter

case experiences some additional muscular sensation. This would hardly be the view of common sense—or, indeed, of the law.

§ 8. *Repudiation of Self-Control*

Of quite other reasonableness and importance are those further attempts at simplifying volitional theory which have sought to break down the distinction made between reigning will and subordinate impulses (Chapter X, p. 170).

Human impulses, when not instantly gratified, continue to exist as desires. These appeal to the will. But so do other motives, such as rational principles. Accordingly, the will has to make the final decision. This state of affairs has been depicted by Hooker in the following passage (where by "appetite" he seems to mean the "sensitive" kind):

> "Appetite is the *will's* solicitor, and the *will* is appetite's controller; what we covet according to the one, by the other we often reject."

The vital importance of this two-level system cannot be more forcibly illustrated than it was by Plato, when he likened the impulses to horses, the will to their driver. Upon the due co-ordination of the members of this system depends, according to him, the whole happiness and even existence of mankind. Prominent among the supporters of these two levels in ancient times appear to have been —besides Plato—Homer, Pythagoras, Heraclitus, Aristotle, the Stoics, St. Paul, Origen, and Aquinas. Notable subsequently were Descartes, Locke, Leibniz, and Fechner.

Scarcely less momentous is the function attributed to the will by the plain man, under the significant designation of "self-control". And this example seems

to have been almost unanimously followed by all applied psychologies, including in particular those of education and psychiatry. Not so, however, many expositions of theoretical psychology. By Hobbes, for instance, the will, as anything on a higher level than impulse, is brushed aside in a couple of lines. When we speak of will, he said, we only mean that particular impulse which happens to come last :

> " In order to action there must be one last appetite which is satisfied, or in accordance with which the action is performed. This last appetite is will."

Different but equally destructive is the view of Hume. For him, the whole characteristic of will as compared with impulse was not time order but tranquillity. He wrote :

> " What is thought by many to be the determination of the will by the reason in opposition to passion, is in reality the determination of the will by certain more tranquil feelings, which from their tranquillity assume the appearance of rational processes Strength of mind and self-control are thus only the predominance of the calmer feelings in controlling the will."

Of peculiar interest has been in this respect the doctrine of psycho-analysis. In its reduction of all motive to one single source (sex), it eliminated the notion of self-control as superfluous. But so doing afforded it the further merit of re-introducing this notion later on ; this time, Plato's " Charioteer " is transformed into Freud's " Super-ego ".

§ 9. *Repudiation of Purpose*

In some of the preceding theories one might think that the endeavour to demolish the doctrine of voluntary action had reached its highest possible point. But this is not

so. Hobbes, Hume, and the others, although they swept away the will, did at any rate leave impulse. According to some modern authors, even this has to be eliminated. There has now arisen a school of associationists and behaviourists who tell us that the whole notion of a goal or purpose (and therefore of volition) is something from which psychology has got to be purified. Hunter, for instance, tells us :

> " Only that which can be observed or experimentally tested comes within the domain of science. Purpose . . . does not lend itself either to observation or to experimental testing."

The fate of psychology, if it were really to be pursued on this principle, baffles the imagination. No account is to be taken of whether any movement is made intentionally or not. No consideration is to be taken of any motives. All allusions to desire are to be expurgated. There is to be no mention of trying, striving, or effort. A person's sentiments, as also their development or repression, are to be banned from mental science. Characterology, education, and psychiatry seem alike to need elimination. Even the testing of an animal's power to thread a maze—which testing these iconoclastic authors cultivate—does not seem very profitable if no notice is taken of whether the animal seems to be really trying or not. What does this leave behind? Bare cognition (if such a thing is conceivable) and the motion of a muscle.

But perhaps some comfort may be derived from the observation that these very associationists and behaviourists do not always practise what they preach. One of their foremost representatives, after denouncing the concept of " purpose " as only an encumbrance on psychology, proceeded forthwith to state what he thought the purpose of psychology really should be!

Altogether, then, it seems not unpardonable if many people, with McDougall, find this suicidal psychology hard to assimilate, and would rather join him in protesting that

> " active striving towards a goal is a fundamental category of psychology."

§ 10. *Evidence of Experiment*

However, instead of exaggerating either one way or the other, we may perhaps most reasonably commence by examining the chief available evidence.

For the most part, the search for this has been directed towards the two acute phases mentioned above. One is the forming of a resolution or decision. The other is the conation which carries it into effect. Both these phases—in popular belief, at any rate—are characterized among other things by their abruptness. A man's impulses and desires wax and wane and sway about, but he makes up his mind at a definite instant: at a definite instant too—though not usually the same one—he actually does a deed.

In common sense, these two acts far more than anything else govern the spinning of human destinies. They alone supply the basis of morality. In the nature of the resolutions and the ensuing deeds is taken to lie the most fundamental feature of personality. To such things are attributed firmness of character, strength of mind, self-control. Deficiency in them is accounted the most universal and disastrous mental disorder.

The pioneering investigation of these two acts by Ach came upon many difficulties. Owing to the frequent repetitions of the same experiment, the required response was apt to degenerate into mere habit. Moreover, even with fewer repetitions there was found the somewhat similar difficulty of " set ". When a person undertakes

the task of doing some particular thing on some particular signal, he may behave almost as automatically as in the case of long habit.

But after eliminating this and other experimental disturbances—as done most effectively by Aveling—the voluntary choice, or resolution, is reported to consist essentially in

> " the adoption by the Self of the motives for the selection of one of the alternatives."

Whereas in the striving or conation there is said to ensue

> " a full-blooded, if elusive, consciousness of the Self-acting-in-some-determinate-way. In this consciousness two terms, or fundaments, and a causal relation are insightfully cognized."

In general, then, the results seem decidedly in support of the older psychology, and incidentally of common sense. The widespread and well-meant endeavours to simplify psychology by ruthlessly cutting out the major part of its content have had no success at all. Within the sphere of volition there can actually be observed the two alleged events differing in kind, not only from cognition and feeling, but even to some extent from impulse. One is the act of resolving. The other is the carrying of the resolution into action.

§ 11. *Mental and Physical Force*

But the experimental observation just quoted suggests another feature about the conation (not the decision). This appears—rightly or wrongly—to be of the nature of a " cause ". And such would also seem to be the view of the man in the street. He undeniably regards himself as exerting influence on his own voluntary actions, bodily or mental.

But can the same be said of the impulses which

precede his actions? Many authorities have answered this in the negative. They have declared that impulses are not so much of the nature of exertions as rather of endurances.

Thus Aristotle writes that

> " He who blushes in consequence of being ashamed and he who turns pale from fear are said to have suffered something."

Still further clarified and developed is the same doctrine with Aquinas, who tells us that

> " the word passion implies that the patient is drawn to that which belongs to the agent." In this way, " the soul is drawn to a thing by the appetitive power."

So, too, in modern times, Lotze. To experience an impulse, he says, with all explicitness, " is to be conscious of being impelled ".

And in notable harmony would appear to be the opinion of common sense. All of us—even psychologists of all schools, when they forget to psychologize—seem to take an impulse to be something by which a person is impelled or even compelled.

Clouston, to take an extreme example, reports as existing

> " the class of impulsive acts, where we seem to have normal volitional power, but the impulses are so morbid and so strong that they cannot be resisted." This fact, he says, " no one can doubt who has actually seen the terror and agony of a mother conscious of an impulse to destroy her child and striving against it with vehement resolution."

Now, however, arrives one of the hardest of cruxes. Common sense, indeed, recks little of it. But among psychologists, and still more so among physicists, it is becoming one of the questions of the day. We have been considering the causation of movement or mental

process by trying, or " conation ". How is this related to the causation of movement which enters into physical science, being there ascribed to " force ", " power ", or " energy " ? That the two kinds of motor agency, mental and physical, had long been taken to have much in common, is evident immediately ; for the very words " effort " and " force " have one and the same origin (*fortis*, strong). And some such identification seems to go back to the beginning. It is perhaps involved even in the doctrine of Anaxagoras, that Matter is moved by Mind. But still any deliberate, fundamental, and precise confronting of the two concepts of causality is in ancient literature hard to find.

The decisive advance along this road seems to have been the achievement of Locke. For among his leading tenets was that a man gains many of his ideas by observing his own activities ; and one of these ideas consists, he said, in that of power :

> " We find in ourselves a power to begin or forbear, continue or end, several actions of our minds, and motions of our bodies, barely by a thought or preference of the mind ordering, or, as it were, commanding the doing or not doing, such or such a particular action." In such manner, he says, " we get the idea of power."

We also, he adds, get the idea of power from observing the effects that physical bodies produce in one another ; but as obtained this way, the idea is comparatively imperfect and obscure.

More impressive still was this doctrine as enounced by Maine de Biran, who declared that in voluntary movement there exists and comes to awareness

> " an immediate internal apperception or consciousness of a force which is myself and which serves as exemplary type of all the general and universal notions of causes, or forces."

As for the truth or not of this doctrine that " force ", " power ", " energy ", and so forth are primarily mental experiences, with this we are not here concerned. To weigh the question adequately would involve far-reaching excursions into the sphere of metaphysics. For these we must refer elsewhere. On similar grounds we shall not here attempt to touch the problem of freewill. (But see Chapter XXVII.)

§ 12. " *Activity* "

Before closing this chapter, a brief note seems needed on that extremely hard-worked term " activity " with its kindred " active ", " action ", and " act ". In the acceptance or rejection of this activity is frequently taken to lie the most fundamental distinction between different psychological doctrines. Thus that excellent historian Brett writes as follows :

> " It was an old truth, but France was still without share of it. Leibniz revived it from Plato, and from Leibniz onward it remained a possession of Germany ; it was the insight into the fact that relations imply activity."

However, this rather extensive criticism is afterwards softened :

> " Few, if any, of the great thinkers have denied activity ; many of the greatest have felt that it was a metaphysical subject, to be approached gradually through the study of its manifestations, the recognizable activities."

Often the word " active " is replaced by " dynamic ". Both are frequently applied to the so-called " functional " psychologies. Thus J. S. Moore writes :

> " Structural psychology treats the mind *statically*, as if it were a fixed thing like the body which it inhabits : functional psychology treats the mind *dynamically*, as continuously active and never fixed, or as a stream of constantly changing processes."

So, too, Janet and Seailles contrast the Epicureans with the Stoics, in that the former throughout regard the mind as passive; the latter, as active.

The masterly work of Flugel is equally emphatic in this respect. He writes:

> "James Mill's book had represented the extreme denial of activity in mind. . . . For Beneke, the mind was active. The data expounded by the associationists are recognized, but the complex process of the development of mind from relatively simple elements is regarded as the result of an inner mental activity reacting upon each new element as it presents itself."

But *what does all this really mean*? "Activity" comes from *ago*, I drive; and therefore "action" quite naturally signifies—as the dictionary duly tells us—the exertion of energy or influence.

Nor is there any harm in taking this action to be of two different kinds, volitional and non-conscious (including physiological) respectively. But harm does arise when writers fail to indicate which of the two they intend to signify. For the choice makes all the difference. If only the conscious action is meant, then the charge of leaving activity out of account must be directed against such writers as Hobbes, Hume, and Hartley. But if instead the non-conscious action is included, then Hobbes and Hartley were activists just as much as Leibniz and Beneke; Epicureans, as much as the Stoics; structuralists, as much as functionalists.

But there is a still more perplexing case. Locke, as we saw, is allowed to be an activist because he takes account of the mind's power to perceive relations. Associationists are put at the opposite extreme of passivism. On what ground, psychological, physical, metaphysical, or linguistic, is this to be justified? Why should the mind be called active when it perceives the difference between white and black, but not when it, on seeing "Julius",

reproduces "Caesar"? The linguistic usage of the present volume has been given already (this Chapter, pp. 302-3).

§ 13. *Upshot*

The result of the psychological analysis of voluntary action appears to have yielded, as its most essential constituent, what has been called a conation; that is to say, the mind causes, or seems to cause, some intentional bodily or mental movement. The rousing of this conation has, following the Stoics, been designated as ***horme*** or impulse, a term energetically revived by Nunn and McDougall.

But a complication may set in. Before any actual conation, there may and usually does occur "desire", which looks to the future.

At a higher stage of development, a further fundamental complication arrives. Between all his possible courses of conduct the person makes a choice, a decision, a resolve. His action is determined, but not yet executed. For this he has to make by a final conation.

All this in substance, though not in orderliness of presentation, agrees well enough with most psychologies, and still more so with common sense.

But by several writers, in the laudable aim of simplification, some or other of these volitional constituents have been professedly eliminated. This course has led them very far from common sense. But experimental observation seems to have lead us back to it again.

CHAPTER XVIII

MENTAL STATES

§ 1. Domain of Feeling. § 2 Feelings as States § 3 Feelings as Independent Processes. § 4. Pleasure, One and Only § 5 Ultimate Source of Pleasure. § 6 Neutral States § 7 Complex Feelings § 8 Emotion and Experiment § 9 Upshot

§ 1. *Domain of Feeling*

The experiences considered in the preceding chapter under the name of volition and conation, belong to the sphere of "orexis". But they do not constitute the whole of it. They are only a domain within that sphere (see Chapter XVII, p. 303).

This fact seems evident enough so soon as we look back at the orectic faculties mentioned already (Chapter X). Much else than bare volition appears to be involved in such experiences as the emotions of joy, sadness, fear, hope, and so forth. Still more manifestly different from bare volitions would appear to be the experience of pleasure with its opposite which has been called "unpleasure".

But herewith we reach the very hub of the conscious universe. Wherever we go, pleasure or happiness always seem to lie at the centre of regard. Writers either with Bain insist that it is the end of all pursuit; or else with Kant and Green give themselves up to proving the contrary; or else again with Aristotle, devote themselves to showing just how much can be expected from it. In every application of psychological science—as education,

medicine, art, or sociology—considerations about happiness predominate. And as for practical life, does not this vehemently chase after the kindred experiences of "having fun", or a "good time".

The sole case of its meeting with gross and perhaps deliberate neglect seems to have befallen James, when he wrote the most successful of all psychological text-books—and yet in it gave to pleasure almost no notice!

§ 2. *Feelings as States*

If we consider what has been done towards analysing this precious "pleasure", there comes first and foremost the question as to which, if any, of its differences from volition and cognition have been found to be fundamental.

Now, one such distinctive character seems to be implied in the common practice of designating the feelings as mental "states". For these are devoid of any such volitional or cognitive attribute as activity, horme, stretching, impulse, urge, incentive, and so forth, which mean literally, as we saw, a setting in motion. A state and its synonyms signify, on the contrary, a standing still. Acts of will are things that one does; the states, things that one is. Further, volition as also cognition are what is called in grammar "transitive"; they necessarily involve not only a subject but also an object; to get a complete statement, we must say that some person desires or knows *something*. Whereas a state is usually conceived as ending in the subject, nothing need be added to the statement that a person is happy (but see later in this chapter).

The problem is, then, as to whether the feelings do possess this distinguishing character; whether they really are subjective states as just described, and in this fashion

truly present a fundamental difference from all the objectively directed activities.

By a number of notable authors, this question seems to have been answered negatively. The feelings, even those of pleasure, have often *not* been sharply distinguished from the experiences of knowing and desiring. They have been regarded as only consisting in special kinds of elementary sensory perception. Indeed almost everywhere until recently, the feeling of unpleasure was confused with the sensory percept of pain. Under this class of doctrine comes also the statement of Locke, that pleasure is a " simple idea ". Perhaps also Hume belongs here, as he seems to agree that pleasure and pain are " merely perceptions ".

Other authorities have taken the feelings to be cognitions of higher order. Many have identified pleasure with knowledge of one's own perfection. Thus, Plotinus, Leibniz, Wolff, Baumgarten. Others, reversely, have taken feeling to consist of knowledge that is very obscure; so the Stoics of old, and Hegel in comparatively modern times.

More subtle is the view that would not identify pleasure with cognition, but rather with some phase of volition, such as the fulfilment of desire. Thus Hartmann defines pleasure and unpleasure (*Lust* and *Unlust*) as the gratification and repression of the will. A regrettable equivoque has been brought into modern psychology by the use of the term " satisfaction ", which means *either* the fulfilment of desire, *or* the pleasure resulting from such fulfilment.

On the whole, however, psychologists since the days of Sulzer, Kant, and Tetens, have almost unanimously dropped the identification of the feelings, especially pleasure and unpleasure, with anything directed towards an object; instead they take them to consist of bare states, as described above. In fact many writers acclaim

this conception of feeling-states as a great achievement of modern psychology.

But it would appear that this victory of the psychologists is only over themselves. It is but a return from excursions into which common sense had never strayed. The word state, with its synonyms back to the Latin *status*, seems to have always been thoroughly popular in just the sense here at issue. The same may even be said of " state of happiness " and so on.

Be this as it may, the re-establishment of the fundamental distinction of feeling from knowing appears to have no small practical importance. To more or less confusion between the two may be traced some of the most harmful policies of education, and even of legislation.

§ 3. *Feelings as Independent Processes*

Our next point—far more controversial than the preceding one—has also been already mentioned incidentally. When the Aristotelians and their modern successors refuse to assign to the feelings any faculty of their own, the reason given is that these are in truth nothing more than abstractions; that they merely present *aspects* of the fundamental activities; these themselves are taken to be cognition and volition. Pleasure and unpleasure really consist, Maher says, in nothing more than

> " the harmonious or inharmonious, the healthy or unhealthy, working of any and every mental power. We cannot separate the agreeable or disagreeable character of our various operations, and then set it up as an act of a fresh faculty."

Not very dissimilar was the conclusion reached from the totally different standpoint of the Herbartians. These too asked why feeling and desire should not be regarded as two sides of the same event, and as only separated from each other by way of abstraction. Both

feeling and desire, they said, are but states of ideas and derive from the dynamic relations between these :

> " The ideas through their likeness and contrarieties resolve each other into forces. When these are equally strong, there ensues Disharmony. But when one of these forces is so proportioned to the remainder that it is just brought by them to the ' statistical threshold,' then a harmonious relation is present."

Yet another and much more modern analysis of the feelings into abstractions is that which we owe to Cornelius and particularly to his eminent successor, Krueger. The latter says that

> " it (real experience) is, without exception, imbedded within a *total-whole*, by which it is penetrated and more or less completely enclosed. *Feelings are the qualities of experiences of this total-whole.*"

In further elucidation of this view, the relation of the feeling to the said " total-whole " is said to resemble that of a melody to the constituent musical tones.

Another view is that which would reduce the feelings to nothing more than a particular character or " dimension " of sensation ; just as the latter has its quality, its intensity, and its duration, so too it has its " feeling-tone ". This view has been commonly credited to James Mill, Bain, and Nahlowsky. But the present writer can only find anything of the sort in the first of these three.

Yet another view is that which connects the feelings, not with any particular quality of sensation, but with some localization of them. Head and Holmes in a case of injury to the middle brain (thalamus) reported an excessive response to affective stimuli, which was much more marked on the right side of the body. The patient stated that since the attack he had become excessively amorous on his right side :

> "I crave to place my right hand on the soft skin of a woman. It is my right hand that wants consolation. I seem to crave for sympathy on my right side. My right side seems to be more artistic."

Now a great deal of all this can certainly claim the merit of going beyond common sense. Yet the latter has not been left destitute of support even from the side of scientific psychology. A very elaborate investigation of the matter was made by Wohlgemuth. Moreover, he had the singular good fortune of counting among his experimental subjects such eminent authorities as Professors Carveth Read, Flugel, and Wynn Jones. As a leading result, all the attempts to regard the feeling as mere abstract aspects of the sensory, cognitive, or conative processes were flatly contradicted. The author writes:

> "The feeling-elements are not attributes or functions of sensations or other cognitive processes, but a separate class of conscious processes. Although generally closely dependent upon the cognitive and conative processes to which they belong they often show a certain independence and detachment."

As another illustration of how far the affective processes may occur independently of the cognitive ones, we may quote a case reported by Janet. It was that of a woman who became very angry with her husband during his absence, but on first meeting him could not express it, owing to the presence of other people. When these at length departed, she found herself still in a furious rage with him, but had forgotten why.

Possibly, however, the importance of the whole problem may have been exaggerated. The question as to whether the feelings do or do not constitute experiences on their own account, and are not merely aspects of the cognitive or volitional experiences, may perhaps be short-circuited. It seems to have but little significance for

those who believe that *all* so-called mental experiences are but different aspects of one and the same real mental life.

§ 4. *Pleasure, One and Only*

But now we arrive at a consideration which forthwith does present the liveliest practical interest. The question is as to whether pleasure has only one quality or more. In the reply lies the parting of two great moral systems, and therefore of two divergent paths through life. If all pleasures be essentially of the same kind, then so far as concerns the pursuit of pleasure, the best way of getting it is that which gets most. Accordingly, in the reckoning of an Aristippus, voluptuous debauch and sacred bliss stand on just the same level. Or as a modern author remarked (Bentham, was it?), push-penny is as good as poetry if it gives as much pleasure.

Quite otherwise is the morality and behaviour which can issue from the opposite doctrine, that pleasure may be of essentially different kinds. For these conceivably have different values according as they derive from different sources, sensuous, intellectual, aesthetic, social, conscientious, or otherwise. J. S. Mill may then be right, that the sensuous pleasures, even when greater in quantity, still remain lower in value.

Among the experimental investigations that might seem to bear on the topic, one of the most interesting has been that of Störring. He was in search of evidence for the validity of a distinction that had often been made between pleasure of sensation and that of "mood". He tried to produce these differences by means of pleasantly flavoured drinks; for the pleasure of sensation, the liquid was retained in the mouth; for that of mood, it had to be swallowed. This procedure, the author claims, was successful. Holding the liquid in the

mouth did produce what could be called pleasant sensations, whilst swallowing brought about a typically pleasant mood. Moreover, the two kinds of pleasure had different courses. The sensory kind, although initially intense, rapidly sank. Whereas the mood had long persistence, and moreover evoked thoughts of other pleasant experiences.

What does this result teach us? Practically, it may be helpful for so planning our lives as to increase their pleasantness. And, theoretically, it may throw some light on the sometimes disputed point as to how feelings are consciously linked to the objects exciting them. But, ethically, its importance seems only negative. A feeling is neither more nor less righteous by being short and intense or long and mild.

For distinctions between pleasures to have moral significance they must at least involve fundamental qualitative differences. And on this latter point, the answer of the best experimental work would appear to be so far decidedly a denial. Wohlgemuth reports as follows:

> "There are only two qualities of feeling-elements, viz. Pleasure and Unpleasure. Any differences except intensity, duration, and extensity, are apparent only, and are found to belong to sensations or other cognitive or to conative processes."

But even this result is not so disturbing as it might seem to be. In the first place, granting that pleasure from the senses is in itself just as good as any other, we might still believe, with Epicurus, that all attempts to derive it from this source must in the long run defeat their own object. And in the second place, regarding the matter more fundamentally, we might still maintain that the immoral man is after all not so much he who seeks pleasure of the wrong kind, as rather he who only cares to get it for *himself*.

§ 5. *Ultimate Source of Pleasure*

Of further theories about the elementary conscious experience of pleasure, one concerns its basis in anything non-conscious, including the bodily processes.

Of such theories there have been at least two. Both, as so often, were already picked up by the earliest great writers in the field. The first of these theories appears to have been founded by Plato, who gives what he calls " a general account of the matter " as follows :

> " The concretion of the animal humours through cold, contrary to their nature, occasions pain ; but a return to their pristine state of fluidity, and a restoring of the natural circulation, produce pleasure."

Surely a situation of poor comfort ! Who, Plato asks mockingly, could really desire to endure uneasiness merely for the delight of relief from it ?

But already Plato—though the credit has been denied him—realized that besides this pleasure derived from bodily pain, there is also a pleasure which has no such negative origin. This second kind of pleasure was specially examined by Aristotle. He gives as an outstanding instance the study of mathematics, which, he says, is pure joy throughout. But on this count, at least, he could hardly expect enthusiastic support from the man in the street.

However, waiving this particular instance, there is a strong case to be made for Aristotle's general theory, which is that pleasure goes with the eliciting of perfect energy. He writes :

> " Pleasure is attendant upon every sense, as it is also upon every act of intellect and contemplation ; but the most perfect is the most pleasant, and the most perfect is the energy of that which is well-disposed with reference to the best of all the objects which fall under it."

Of peculiar importance, it may be remarked, is the application of this theory to the pleasure of perceiving beauty.

All through the Middle Ages, the energetic theory of Aristotle seems to have been paramount, whilst the relief theory of Plato was mostly forgotten. In the sixteenth century, however, Cardan vigorously revived the Platonic view. And in so doing he was supported by Montaigne. But then came Descartes, who achieved great fame for what was really but a passing and inadequate expression of the Aristotelian view again :

> " All our pleasure is nothing more than the consciousness of some one or other of our perfections."

After much of this wavering back and forth, the Aristotelian theory took at last a more novel turn in that it became more definitely physiological. Conspicuous names have been those of Allen, Marshall, and Lehmann. The last-named sets out from the physiological conceptions of Assimilation and Dissimilation. The former consists in building up bodily cells out of simpler food materials. The latter is the reverse process of breaking the cells down again. The ratio of these two, or A/D, he calls the biotonus. When A = D, the result is pleasure, which increases with increasing values of A and D. But when A is less than D, the result is unpleasure ; and it becomes greater, as this ratio becomes smaller.

And so, according to this last doctrine, is finally revealed the origin of happiness. We have here the key to all the rational endeavours of mankind ; the essence of all that in behaviour is good and bad, right and wrong, wise and foolish ; the ultimate aim of every individual and of every society. To secure the Greatest Happiness of the Greatest Number turns out to be nothing else than the mass production of A/D = 1.

§ 6. *Neutral States*

But from such empyrean spheres of Ethics, let us come down again to the humdrum region of mental analysis. This characteristic of being a "state", is it confined to pleasure and unpleasure; or does it extend to other elements of experience? In the technical language of psychologists, is it solely "hedonic" (ἡδονή, pleasure); may it instead be "anhedonic" or "neutral"?

Often the decision has been for the former alternative. Spinoza, for instance, writes confidently as follows:

> "Among the emotions attributable to the mind there is none that cannot be referred to pleasure or pain."

A modern emphatic advocate of the same view—basing himself moreover on experimental evidence—is Titchener. And since unpleasure is taken by him to be only the opposite of pleasure, the pair conjointly constitute only one "dimension".

Wundt, on the other hand—also basing himself on experiment—arrives at the conclusion that states of feeling are in three pairs and so have *three* dimensions. Although conceding that pleasure and unpleasure constitute the pair that presses most upon our notice, he claims that in many experiences there can be detected another pair, of which one is "excitement" (*Erregung*); and the other is "calm" (*Beruhigung*) or "depression" (*Depression*). He specially cites high-pitched tones as producing the excitement; low-pitched ones, the calm. But he adds that with practice this second pair of opposites can be noticed in very numerous emotions, such as anger, grief, expectancy, hope, fear, and anxiety. His third pair consists in the respective feelings of "tension" (*Spannung*) and "relaxation" (*Lösung*). As an instance he gives the experience of listening to a slowly beating

metronome; the tension occurs whilst waiting for each beat; the relaxation, when the beat actually arrives. Altogether, he arrives at the following three-dimensional scheme of the elementary states or feelings. (Here the lines pleasure-unpleasure and relaxation-tension lie in plane of the paper, whilst tension-relaxation is at right angles to that plane.)



This view seems well in advance of the plain man. The latter does indeed believe in a large number of different mental states (including, of course, that of "excitement"). But little he recks of the precise number to which they can be reduced by way of elementary analysis.

Another and very different doctrine is that *all* sensory stimulations of the organism *begin* by producing experience which has the nature of feelings, affections, or states (but not necessarily hedonic). In certain cases, as that of visceral sensations, it is found that the experience continues to be only a feeling throughout. But in other cases, notably that of visual sensations, the feeling-like or subjective character of the experience is extremely brief; so much so that it is not easily detected at all; in a small fraction of a second it passes over from the subjective to the objective character. This view has already been considered by us (Chapter XII). We will only remark that this, too, exceeds the bounds of the plain man. He talks freely of states of excitement, calm, relaxation, or tension. But he is not familiar with states of seeing, of hearing, or even of touching.

§ 7. *Complex Feelings*

Throughout this chapter we have been concerned with the elementary feelings, and have only touched in a casual manner on those which are, or seem to be, very complex. Here come, in particular, the emotions. Outstanding instances are love, hatred, anger, and fear. In common-sense dictionaries, such a thing is said to be

> " A movement, stirring, perturbation, or excitement of the mind."

Psychologists, hoping to do better, define it as

> " A total state of consciousness considered as involving a distinctive feeling-tone and a characteristic trend of activity aroused by a certain situation which is either perceived or ideally represented."

Herewith we seem again to enter a region of extraordinary value. Look at any drama, biography, or novel. Our interest is not for what the personages know, but for how they love and hate. Turn to mental disorders—or politics will do as well—and you find the scene dominated by anger, fear, and anxiety. Follow the philosopher, or the saint, to his last lair. Is he not above all things striving to escape from his tumultuous passions ?

In this wonderful field, then, what sort of harvest has really been reaped by science ? Listen to James :

> " The merely descriptive literature of the emotions is one of the most tedious parts of psychology. . . . You feel that its subdivisions are to a great extent either fictitious or unimportant, and that its pretences to accuracy are a sham. But unfortunately there is little psychological writing about the emotions which is not merely descriptive."

The outlook is unpromising. However, even the descriptive power which he does concede to psychology

may not be without usefulness. Anyway it is just that with which we are in this chapter primarily concerned.

Description largely consists of classification, and one attempt at this has already met us in the very beginning of psychological history. From Plato, through Aristotle, and on to the Schoolmen with their followers, we find the acceptance of two classes of emotion, called respectively "concupiscible" and "irascible". The former envisages objects as agreeable or repugnant in themselves; it comprises joy, sorrow, aversion, love, and hatred. The other class regards objects as involving some difficulty or danger; it includes hope, despair, courage, fear, and anger. Another classification, favoured by some Neo-scholastics (notably Maher), divides up the emotions into the self-regarding, the altruistic, the sense of power, the emotion of change and of intellectual activity, the aesthetic emotion, and the moral sentiment. Among the numerous other lines of division may be cited that of T. Brown into immediate, retrospective, and prospective; that of Hamilton into sensory, contemplative, and practical; that of Spencer into what he perplexingly calls presentative, presentative-representative, representative, and re-representative.

But more hopeful scientifically than any of these classifications would appear to be the endeavours which have been made to show that the multitudinous emotions commonly regarded as different are at bottom nothing more than varied combinations of comparatively few "primitive" or "primary" ones. A great historical step in this direction was taken by Descartes, who elaborately analysed all the emotions into diversified mixtures of six only: wonder, love, hatred, joy, sadness, and desire (Chapter X, p. 181). In modern times, by far the best known has deservedly been that of McDougall, who finds the number of primary emotions to be fourteen, each appertaining to a different instinct.

But James, in place of any such classifications, for which he seems to have so little use, gives his own famous contribution, expressed as follows:

> ". . . the more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble because we are sorry, angry, or fearful, as the case may be."

Here in this dominant importance ascribed to the respiratory, vascular, and glandular constituents of emotion, the author certainly succeeds in transcending the bounds of common sense. Whereas Lotze, thirty years earlier, had still preserved some contact with it:

> " A contracted position of the body damps our ardour; in a listless attitude we cannot feel aggressive; anger subsides with the subsiding of bodily tension; even the higher emotions connected with appreciation of the beautiful and the good are compounded with freer breathing, quickened pulses, and increased sense of vitality, while repentance and sorrow are no mere judgments of moral failure, but also actual physical depression shown in relaxation of the limbs, reduction of breath, and a sense of oppression in the chest."

Stripped of exaggeration, indeed, this supposedly novel doctrine of the bodily accompaniments of emotion had already been elaborated by Malebranche and Descartes, not to mention the Schoolmen and even the Ancients.

But are there not in an emotional experience, it may be asked, further constituents over and above all the feelings in it, hedonic or otherwise? The answer to this question seems to be largely a matter of words, as has been indicated by McDougall. Sometimes " emotion " is used in such a narrow sense as to include little else than the feelings. At other times its scope becomes so broad as to take in also much volition and even cognition. We shall return to this point in the following chapter.

But all this—as the reader will no doubt have been critically noticing—concerns only those complex feelings

which are commonly called emotions. Are there no others? What about the aesthetic feelings? Or the moral ones? Or the religious? Or the logical? There would seem to be no end. Lindworksky tells us:

> "With just as much right, separate feelings can be found for every condition and every situation. One could just as well talk of a marriage-feeling, or of a burial-feeling, or of a sixth-form-schoolboy feeling."

§ 8. *Emotion and Experiment*

Finally, it may be mentioned that even here in the case of emotion, psychologists have been able to introduce the experimental method of research. This undeniably has encountered very great difficulties. But at least it has overcome the one that seemed to be most formidable; that of dealing with genuine emotion.

First of the investigations to be satisfactory in this respect was that of Martius. The subject, a porter in the service of the university, was asked to take part in some scientific inquiry (no mention being made of its nature). He was taken into the laboratory, put into a comfortable chair, and then fitted out with apparatus that would give an exact record of the principal bodily expressions of emotion, including in particular all modifications in the intensity, frequency, and course of the pulse, as also the changes of breathing, thoracic and abdominal, inspiratory and expiratory. When all this was ready, the experimenters proceeded to carry out a little scene previously arranged. There was brought into the room a message for the porter that his pay was going to be doubled. In his situation, who could fail to experience an emotion genuine and lively enough? After a pause, which allowed his circulation and respiration to approach equilibrium again, the porter was informed that the whole business had been only a trick. New emotion, this time

of opposite tendency. Registration of new circulatory and respiratory manifestations. When these too had sufficiently subsided, his disappointment was compensated by a handsome present for his services. Yet further emotion, with its manifestations. And so all ended happily enough.

Another case was staged by Lehmann. This time, after the victim had been fitted out in much the same manner as before, he was told that there would be some delay before the experiment could begin, and for the meantime he was given an excellent cigar. Even this event was by no means devoid of emotional consequence. But far more intense, and consequently instructive, must have been the experience of the victim when Lehmann suddenly flicked the cigar out of his mouth.

As a further example of such work may be mentioned the enterprise of Binet, when he fitted out an old lady with the recording apparatus and then had a message brought in that the house was on fire. This time no records were left—only the smashed apparatus!

Unfortunately, none of these experimental adventures were crowned with the success which they deserved. For direct introspective analysis, the conditions were obviously quite unsuitable. And even the study made of the physical manifestations failed to arrive at generally accepted results. In particular, as was shown by Berger, the study of the circulation of the blood cannot be conducted effectively without taking account of that portion which occurs within the brain. And this can only be done in those exceptional and difficult cases where some of the skull is missing.

§ 9. *Upshot*

In the preceding chapter we have continued our account of the analysis of mental experience into its last

elements. Having previously in this manner arrived at the elements of cognition and of volition, we have here got to those of feeling or affection. Of these latter by far the clearest and most vital we discovered to consist of pleasure (with its opposite, unpleasure).

About this we found that the chief questions put by psychological inquiry have been as follows: Is pleasure distinguished from cognition and volition by the characteristic of being a mere "state"? Is it an independent process, or only an abstraction? Has it a variety of qualities or only one? Do any other kinds of elementary mental states exist?

From such comparatively isolated states we passed on to others supposed to be more or less buried in the complex experiences called emotions. Here the question that seems to have excited most psychological interest is as to how far they consist of sensations deriving from disturbances of the muscular or vascular systems.

As regards the answers given to these questions, most of the inquiries from the earliest ages seem to have passed through two phases. Firstly, a wide departure from common sense. And secondly, a return to it.

Of the remaining cases where psychology does seem to have made a definite advance, the one most fraught with momentous consequences would seem to be the experimental result that in quality all pleasure is alike.

Even greater possibly in significance, but far inferior in definiteness, is the ancient theory that pleasure derives from perfect expenditure of energy. Nowadays this view is often transmuted into terms of hypothetical physiology.

CHAPTER XIX

UNITS OF BEHAVIOUR

§ 1. Theory of Goals. § 2. Theory of Reflexes § 3. Rivalry between Will and Intellect. § 4. Alliance between Will and Feeling. § 5. Role of Bodily Resonance. § 6 Upshot.

§ 1. *Theory of Goals*

So far, we have considered the elementary analysis supplied by the psychology of cognition (perception and thought, Chapters XII-XVI) as also of orexis (volition and feelings, Chapters XVII-XVIII). Let us now go on to see how psychologists have managed to put these disjoined elements of behaviour together again.

By Aristotle the problem was envisaged as follows :

> " The soul of animals ", he said, " is characterized by two capacities—on the one hand, the cognitive discriminative faculty as shared by understanding and by sense, on the other hand, the faculty of (local) movement. The nature of sense and intellect has been so far settled : we must now investigate the motive faculty of the soul."

That is to say, having postulated that an animal can both cognize and move, we have to show how the former activity can lead on to the latter.

He began by indicating what would *not* fit into the gap. First and foremost he discussed the notion that it can be anything non-conscious :

> " Evidently it is not the mere vegetative capacity which does so. Local movement is always directed to some end, and is accompanied either by a representative image or by

> a desire, since nothing—unless indeed its movement be the result of force—moves without seeking either to gain or to escape something.

Nor would he even admit that the gap can be adequately filled up by Sense:

> "As little is it the faculty of sense which causes local movement. There are many animals which possess sense powers and yet continue throughout fixed and unmoved. But nature makes nothing without a purpose, nor leaves anything, mutilated and imperfect forms excepted, without that which it requires."

Finally, he rejected the suggestion that the missing link can be purely cognitive:

> "Neither, further, is the ratiocinative part, nor the so-called reason, that which produces movement. The speculative reason thinks nothing which relates to action, nor does it assert anything with regard to the object of pursuit and aversion: whereas movement is invariably connected with one either pursuing or avoiding something."

What does perform the required office of intermediation, he tells us, is "the principle of orexis". On this principle, some *goal*, perceived or imagined, "moves to action".

All this amounts to much the same as saying that a person does things because he wants to. This is in good enough accord with common sense, though not obviously any great advance thereon.

§ 2. *Theory of Reflexes*

The preceding doctrine seems to have reigned in tranquillity for about two thousand years, but then to have received a rude challenge from Descartes. This hardy recusant declared that the connection between the stimulation of the sense organs and the execution of the

ensuing movements may not need the intervention of any goal, or indeed of anything mental at all. It can be effected by the unaided body:

> "All the movements that we make without our will contributing to them (as often happens when we breathe, when we walk, when we eat, and in fact when we do all the actions which are common to us and the animals) depend solely on the conformation of our members and on the course taken by the spirits" (in modern language, nerve impulses).

Since that time there has been a continual dispute as to how far the domain of such merely "reflex" movements really extends. Few if any authors have followed Descartes in letting them constitute just what can be done by the lower animals. But several have gone further still, and declared that even the movements specific to man are fundamentally of the nature of mere reflexes; consequently, these extremists argue, all goals should be eliminated from psychology (Chapter XVII, p. 309). At the other extreme, many authors have insisted that even the reflexes are really psychical; they declare that the goals, if not always present consciously, are so at any rate subconsciously.

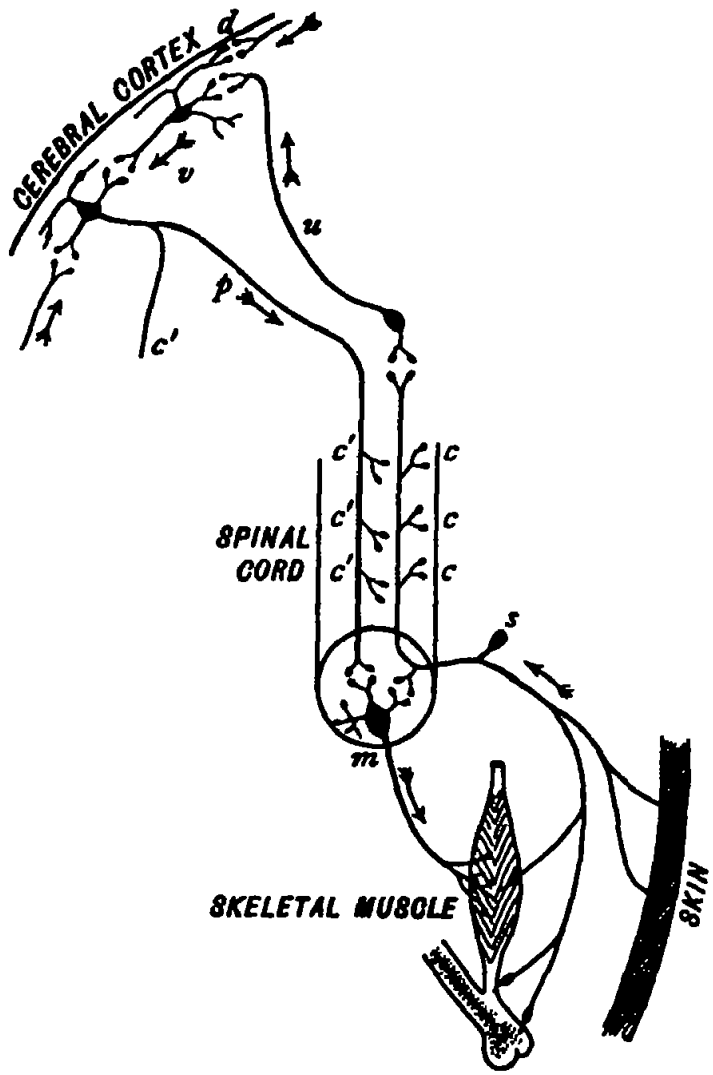
An intermediate and more moderate current view of the matter is the following. At the bottom of the scale of the adaptive processes of man come those which seem purely mechanical and do not even involve the nervous system. Many of these are devoted to preserving the animal's physiological equilibrium. Thus, the so-called amoeboid leucocytes concentrate at the seat of lesions to ingest foreign matter. Ciliated epithelium in the lungs, nose, lachrymal ducts, and the ventricles of the brain alternately contract and relax in such fashion as to move particles along them. There is a continual interchange of substance with the outer world, such as the demand and supply of oxygen.

More surprising may be found the further arrangements which serve to maintain a constant temperature of the blood. But something analogous even to this is effected by many machines. Clocks, for instance, have elaborate devices whereby to preserve a constant equilibrium. Still more wonderful are the adaptive movements of an organism in its development, repair, and regeneration. When a bone is broken, the plates of spongy tissue rearrange themselves so as to lie in the new direction of greatest tension and pressure. If half of the ovum of a frog is destroyed, the embryo will have only half a body, but the remainder will grow later on. Inorganic structure has no such property at all, unless we would consider as analogous the phenomena of crystallization.

Rising in the scale, we now come to the adaptive movements which were cited by Descartes and have subsequently been called " reflexes ". These have been defined as " actions without necessary participation of consciousness ". On the physiological side, they have been supposed to involve the nervous system, but not that part of it which constitutes the cortex of the brain. This concept of " reflexes " is one that has been worked hard.

However, serious difficulty waits on it when need is found to divide the reflexes into two different classes. Only the lower class of these—attributed to the " spinal level "—is deemed to be purely physiological. The higher class—that of the " intermediate level "—does involve consciousness, but in minor degree. Its reflexes are taken to include sensation, and even to be in some measure controllable by the will. As instances McDougall gives the following: cough produced by irritation of the throat, blinking of eyes on the rapid approach of objects, and the turning of the eyes and head towards sudden flashes and noises.

The two levels, spinal and intermediate, are indicated by the following diagram :



m represents a group of motor neurones or motor system innervating a group of skeletal muscles, *s* the sensory neurones of the "muscular" or kinaesthetic sense stimulated by the contractions of the muscles, *u* the upper part of the afferent path to the kinaesthetic area of the cerebral cortex, *p* one or more large neurones of the pyramidal tract forming the descending limb of the loop or arc of the second level, *v* a chain of cortical neurones connecting *u* and *p*, *d* an association-path through which *v* may be centrally excited, *c* and *c'* collaterals of *s* and *p*

Against this psycho-physiological view stands the objection that no definite boundary can be drawn between the smaller participation of consciousness and the larger ; that such operations as perceiving " the rapid approach

of any object ", far from consisting of bare " sensation ", must really involve very elaborate mental processes.

§ 3. *Rivalry between Will and Intellect*

Besides such embarrassment about the depths to which cognition descends, there has been further trouble as to the heights to which it ascends. Should or should not the intellect be assigned precedence over the Will? Such was one of the most debated questions in the Middle Ages. On it depended, for instance, the dictum of Augustine:

> " Believe that you may understand."

Aquinas ranged himself—with reservations—on the other side, that of the Intellect. He wrote subtly as follows:

> " If the intellect and will be considered with regard to themselves, then the intellect is the higher power. But relatively we find that the will is sometimes higher than the intellect from the fact that the object of the will occurs in something higher than that in which occurs the object of the intellect. . . . Wherefore the love of God is better than the knowledge of God; but, on the contrary, the knowledge of corporeal things is better than the love thereof. Absolutely, however, the intellect is nobler than the will."

On the side of Augustine have been Avicebron, Duns Scotus, and William of Occam. With Aquinas were Averroes and the mystic Eckhart. Spinoza, too, was intellectualistically inclined. Whereas Leibniz, Kant, Fichte, and many others have leaned more towards voluntarism.

But interesting as may be the point for philosophy, and in particular for ethics, it seems to have dropped out of general concern. For psychology, as for Aristotle, and indeed for common sense, cognition and orexis simply follow each other in a certain sequence, without

any need of being ranked in order of merit. A boy sees an apple (cognition). He thinks of eating it (cognition), and desires to do so (orexis). He thinks how to reach it (cognition), and acts accordingly (orexis).

§ 4. *Alliance between Will and Feeling*

This simple account, however, leaves one important point unsettled. The orexis, as we saw, is a term that includes both volition and feeling. Which of the two arrives on the scene first? In other words, does the boy want the apple because it will give him pleasure, or does it give him pleasure because he wants it?

The primacy of the pleasure is advocated, for instance, by Hamilton as follows:

> "To resolve this problem let us take an example. A person is fond of cards. In a company where he beholds a game in progress, there arises a desire to join it. Now the desire is here manifestly kindled by the pleasure which the person had, and has, in the play. The feeling thus connects the cognition of the play with the desire to join in it; it forms the bridge, and contains the motive, by which we are roused from mere knowledge to appetency—to conation, by reference to which we move ourselves so as to attain the end in view.
>
> "Thus we find, in actual life, the Feelings intermediate between the Cognitions and the Conations. And this relative position of these several powers is necessary; without the previous cognition, there could be neither feeling nor conation; and without the previous feeling there could be no conation."

This is a form of the doctrine of "hedonism". Its two ancient leaders, as we saw, were Aristippus and Epicurus (Chapter X).

But other early original thinkers were not as easily satisfied. They tried to submit pleasure to a more subtle analysis. Plato conceived it to consist in the

satisfying of a preceding state of deficiency. And not very dissimilar was, after all, the doctrine of Aristotle, according to which the feeling of pleasure springs from the free play of our mental faculties.

But from this latter position it was only a small step to saying that pleasure is derived from doing what we desire to do. And herewith the hedonism is turned upside down. Feeling is no longer cause, but effect; no longer anterior, but posterior, no longer the foundation of desire, but the crown. Aquinas writes:

> "When the good is obtained, it causes the appetite to rest, as it were, in the good obtained; and this belongs to the passion of *delight* or *joy*; the contrary of which, in respect of evil, is *sorrow* or *sadness*."

In accord is, at the present day, Shand's characterization of joy as the result, not the cause, of satisfaction.

Similar, if more modernly expressed, is the following view of McDougall:

> "Pleasure and pain are not in themselves springs of action, but at the most of undirected movements. Directly or indirectly the instincts are the prime movers of all human activity. Pleasure and pain do but serve to guide them in their choice of the means."

In another place, McDougall pursues his argument as follows:

> "Yesterday, I drove down the village street and a large collie raced along the road beside the car. His course, which was perfectly straight, led him within a few feet of a hen, which was anxiously gathering her chicks at the roadside. As he passed the hen, she flew at him with all her feathers ruffled. There can be no doubt that she would have behaved in the same way, even though this were the first occasion on which she led forth her brood from the shelter of the hen-coop. In other words, her action was impelled neither by pleasure nor pain, and was not an effort to secure pleasure or to avoid pain."

Here we would seem to meet a problem of tremendous magnitude. In its psychological aspect, it runs: Does a person fundamentally derive joy from getting what he wants, or does he want to get what will give him joy? Converted into ethical terms, *should* his purpose aim primarily at the Good or at the Pleasant?

Already Aristotle anticipated the problem and took up a very cautious position on it. After a very penetrating examination of the nature of pleasure, he ends as follows:

> "But let the question, whether we choose life for the sake of pleasure, or pleasure for the sake of life, be dismissed for the present, for these seem to be intimately connected, and not to admit of separation; for without energy pleasure is not produced, and pleasure perfects every energy."

Possibly, however, the two opposed doctrines can be reconciled. Why not admit *both* that doing produces feeling *and* that feeling produces doing? One can easily suppose that a babe first sucks by pure instinct, or even by mere chance, but the next time for the pleasure obtained. And so would arise a circular co-operation:



§ 5. *Role of Bodily Resonance*

In modern psychology, general interest has been switched off to quite another difficulty of analysis and therefore also of synthesis. At issue here are the bodily accompaniments of strong emotion. Well-known instances are trembling in fear, weeping in grief, and gnashing the teeth in rage. Such effects are for the most part facial, respiratory, vascular, or glandular (see Chapter XVIII).

These manifestations, which apparently had been

well known from the earliest times, were by James pushed to a wilful paradox. But thereby they gave psychologists plentiful matter for discussion, until these at last worked themselves back again to the equilibrium of common sense again.

At present there is a fairly general agreement once more that these bodily " stirrings " are to some extent preparations for action, but otherwise are mere emotional " expressions ", as studied particularly by Darwin and Wundt.

§ 6. *Upshot*

On the whole, the task of putting the elements of behaviour together again into units of lowest order—though not without its difficulties—has so far proved to be much less arduous than had been originally that of taking these elements apart.

Moreover, the trouble with the synthesis did not usually lie in the synthetic operation itself, nor even in the fact that this had been preceded by an analytical one, but rather in the peculiar manner in which this analysis had been conducted. How shall psychologists put together an adequate picture of a man's behaviour when their material for the picture has been robbed of all that is most essential, such as the man's goals, intentions, desires, and so forth ?

Among the difficulties that do appear to have derived from the synthetic operation is a point of precedence. Which of the two, will or intellect, must be regarded as of higher rank ? But this question, once serious enough, has long since dropped out of discussion.

Still alive, on the other hand—and indeed of no small importance in the practice of ordinary life—is the question as to how the processes of willing collaborate with those of feeling.

Of deeper theoretical interest, however, appears to be at present the problem as to how all these processes of both kinds are linked up with muscular, vascular, and glandular disturbances.

For the rest, the main importance of the synthesis recorded in the present chapter seems to lie in its reiterating once more the doctrine of Spencer that the psyche is an organism in an environment.

CHAPTER XX

COMPLEXES OF BEHAVIOUR

§ 1. Association and Habit. § 2. Ends and Means. § 3 Principle § 4 Temperament. § 5. "Sentiments." § 6. Psychoanalytical "Complexes". § 7. "Descriptive" and "Understanding" Psychologies. § 8. Nature of Mental Organization. § 9. Upshot.

§ 1. *Association and Habit*

The preceding chapter dealt with reconstruction. We considered how the cognitive, volitional, and affective elements found by psychologists in mental experience had been put by them together again into the complex structures which are taken to be units of behaviour (stimulus and response).

Let us now try to carry on the reconstruction further. In what fashion have these units themselves been taken by psychologists to be organized together, so as to constitute experience as a whole? The question is of especial interest, in view of the charge now being urged with such insistence against psychological analysis, that by this the mental organization is lost to view (see Chapter IV).

One answer to the question has been that mental organization derives wholly and solely from the law of association and habit. This law lays down that, when two actions have occurred together, then the recurrence of the one tends to revive that of the other. But with this exclusive reliance on association we need not here further trouble ourselves. Of comparatively modern

origin, it already appears to be moribund (see Chapter XXVIII).

Another view, far from crediting the law of association with exclusive power to organize mental life, regards it as only able to establish connections of a casual and random nature. Thus Shand writes that

> " The laws of Association on which Mill and the old writers founded extravagant expectations, so far from interpreting, frequently counteract the laws of Organization, by substituting casual and unmeaning for serviceable connections."

Yet a further view is intermediate. Association and habit are not credited with being the sole means of organization, but nevertheless are allowed to possess great influence in this direction. Artistotle writes :

> " By abstaining from pleasures we become temperate, and when we have become so, we are best able to abstain from them. The same also is the case with courage ; for by being accustomed to despise objects of fear, and to bear them, we become brave, and when we have become so, we are best able to bear them."

And what Aristotle here says about temperance and courage can easily be generalized. Who can doubt but that in general a person's behaviour is largely shaped by the way in which he has been brought up ? From such superficialities as his handling of his knife and fork up to his momentous attitudes towards politics and religion, his conduct falls largely under the rule of habit ; it becomes organized in more or less accordance with the organization of his environment.

And this much, be it observed, is already embodied in the proverbs of common sense, such as " man is a bundle of habits ".

§ 2. *Ends and Means*

Very different, however, from all this organization of mental life by the chance of association and habit, is that which derives from the logical connection between ends and means. Here objects are not wanted for their own sake, but for that of other things. In this manner, commonly, desires are built up into more or less elaborate hierarchies. Means are directed to ends which are themselves means to higher ends. Thus, a man's working at his job is to him a means (among others) of retaining it; he wants to retain it because he wants the money which it brings in; he may want the money in order to marry; by marrying he may hope to get children; and so on, up to the farthest goal that he for the present has in mind. At the limit, as the poet sings:

> " Life's but a means with an end; that end
> Beginning, means an end to all things."

In general, this organization of behaviour into ends and means has been already obvious enough to common sense, and has only been overlooked by those psychologists who, wittingly or otherwise, have fallen into associationism.

Still, the matter is not free from difficulty. One special trouble arises in that sometimes what looks like an adaptation of means to an end goes to such a length as to be incredible. This is especially the case with what have been called the " specific instincts ". A bird building a nest for chicks not yet existent! A wasp (Sphex) providing food for larva that it will never see! To some psychologists, such instinctive adaptation of the lower animals, so inexplicable even by the highest reasoning power of the human mind, did but confirm the view of Descartes, that the actions of these animals are not mental at all, but merely mechanical. Other authorities,

however, have taken refuge in the opposite hypothesis. Under the title of "intuition", Bergson has ranked the instinctive action, not below reason, but above it (see Chapter VI, p. 124).

There remains, however, a third view half-way between these two rather wild extremes. Perhaps the Sphex in each of its actions sees a little ahead, but not far; certainly not so far as the eventual feeding of its offspring not yet born. Such would appear to be the teaching of Wundt.

But this author pursues the complication of means with ends much further. He writes:

> "The results of actions always extend, to a degree that could not be foreseen, beyond the purposes contained in the original motives" (p. 724). "Not the previously willed but the actually *reached* end forms the basis of new series of motives and of the ensuing actions" (p. 765). "We name the principle which comes to expression in this development of motives that of the Heterogeny of Purposes."

Compare Hamlet:

> "Our thoughts are ours, their ends none of our own."

In view of the acute controversy that has arisen, as to how far behaviour—especially of the lower animals—is governed by persistent purpose, it is worth noting that McDougall supplies seven marks whereby such purposive behaviour and mere reflexes can be effectively distinguished from each other:

> "(1) A certain spontaneity of movement.
> (2) Persistence of activity independently of the continuance of the impression which may have initiated it.
> (3) Variations in direction of persistent movements.
> (4) Coming to an end of the animal's movements as soon as they have brought about a particular kind of change in its situation.

(5) Preparation for a new situation toward the production of which the action contributes.
(6) Some degree of improvement in the effectiveness of behaviour, when it is repeated by the animal under similar circumstances.
(7) Purposive action is a *total* reaction of the organism."

§ 3. *Principle*

However, be the chain of means to end long or short, it certainly must somewhere terminate. With good right, then, the philosophers in all ages have devoted themselves to the search for *last* ends. They have sought for the deliberate valuation of objects as good in themselves. Such a valuation brings us back to the Charioteer of Plato (Chapter V). It takes the form of a universal proposition (see above, pp. 112 and 171). It does this, moreover, regardless of what nature the good may be deemed to be. For example, a person may follow the recommendation of Plato, that life should be spent

> " contemplating beauty in the abstract."
>
> (*The Banquet*)

But instead he may give himself up to Christian charity, to the pursuit of truth, to the cult of an art, or to worldly ambition. Or he may be devoted to the cause of liberty, to that of peace, or that of the greatest happiness of the greatest number. He may espouse the cause of prohibition, of sexual purity, or of antivivisection.

Since each such general objective comprises an indefinitely large number of particular cases, its pursuit will have wide-flung influence and will impart to anybody's behaviour a corresponding degree of consistency and stability. In this sense, his character tends to become integrated. A foundation is supplied him upon which to build up the most important of all characteristics differentiating one man from another; he can

become, for better or for worse, a person of *principle*.

Further, in accordance with the account already given of volition (Chapter VII), his life will incline to be strenuous. For whenever his rational objects and his impulsive tendencies come into mutual conflict, then, apparently, the latter supply their own special motive power, whereas the former need the expenditure of general volitional energy in their support (see above, p. 313).

Important as all this is, however, it can scarcely claim to represent any startling advance of science beyond common sense. To be "a man of principle" is a characteristic familiar enough even in the streets.

§ 4. *Temperament*

Among other influences that tend to raise mental life from chaos to system, a prominent place has been assigned to what is sometimes called temperament (Chapter X).

Under this heading we may bring the case put forward by Ribot as chief illustration of his "*logique des sentiments*". It is that of "timidity". The nature of this he describes as follows:

> "Physical symptoms: troubles sensorial, motor, vascular, visceral, secretory. Mental symptoms: fear, shame, loss of will and inhibition of acts, absence of presence of mind, and that particular character which only manifests itself between man and man and consequently in a social form. In a word, it is an 'affective hyperesthesia.'"

On this foundation, he says, reasoning proceeds to build further.

> "That affective matter is transformed by an accumulation of judgments of value, by a subjective appreciation of men and events. . . . The march of the spirit is irrational and advances chiefly by intuition."

He adopts what he calls the fine analysis made of such cases by Dugas:

> "The excess of timidity develops in the subject a keen clairvoyance. His perspicacity is very limited. It bases itself on indications, not on proofs; is made up of impressions, not of judgments. It is sure of itself, but it never discusses or justifies itself. It is the intuition, or rather the rapid interpretation of spontaneous movements, of words, of tone or voice, of physiognomy, and of gestures . . . impression made of details seized in passage and subtly analysed. It is opposed to the *deliberate judgment* that we make on persons in accordance with their characters and their acts observed in cold blood."

All such action, Ribot says, terminates in "misanthropy, pessimism, egotism, malady of ideals, mysticism".

Interesting, however, as is this sketch of the systematic development of character under the influence of the emotion of "timidity", we must not forget that it all rests on a precarious assumption; namely, that the emotion itself is consistent. Otherwise the bare fact of anyone trusting to mere indications instead of definite observations does not seem so much calculated to organize his character as rather to *dis*organize it.

And herewith we reach a great contrast between the previous case of principle and the present one of temperament. Rational judgments tend to produce mental systems owing to their essential attributes of permanence and consistency. Emotions, too, may conceivably also be permanent and consistent; but possibly they may not be so. *We here need evidence* (see Chapter XXXVI).

§ 5. "*Sentiments*"

The kind of organization we have just been considering is that which derives from a single self-consistent emotion. But there is a further kind which brings together

different emotions, these being systematically centred on some single object. In this way arises a structure which has been designated by Shand a "sentiment"; an unfortunate equivocation, by the way, since this word has commonly been employed to denote not several but a single emotion. The most conspicuous of these sentiments of Shand is taken by him to be "love", which combines the emotions of "fear, anger, joy, and sorrow, besides others". He writes:

> "In the presence of anything we love we are disposed to feel joy, and in prolonged absence from it, sorrow, and at the suggestion of danger to feel the fear of losing it, and when it is attacked to feel anger against its assailant."

This view has been enthusiastically welcomed by McDougall in the following generous terms:

> "The conception of a sentiment, as defined by Mr. Shand, enables us at once to reduce to order many of the facts of the life of impulse and emotion, a province of psychology which hitherto has been chaotic and obscure. That, in spite of the great amount of discussion of the affective life in recent centuries, it should have been reserved for a contemporary writer to make this very important discovery is an astonishing fact, so obvious and so necessary does the conception seem when once it has been grasped."

The great value of this theory—at any rate in the hands of these two authors—can hardly be denied. But less can be said in support of its complete novelty. For indications of it can be found already with Plato. And by the time of Aquinas it appears to have reached a perfection rarely if ever excelled subsequently. This author wrote, for instance:

> "There must needs be in the sensitive part (of the soul) two appetitive powers—one through which the soul is simply inclined to seek what is suitable, according to the senses, and to fly from what is hurtful, and this is called

concupiscible: and another, whereby an animal resists those attacks that hinder what is suitable, and inflict harm, and this is called the irascible."

About the primary or concupiscible appetite he proceeds as follows:

"Good has, as it were, a force of attraction while evil has a force of repulsion. In the first place, therefore, good causes, in the appetitive power, a certain inclination, aptitude or connaturalness in respect of good; and this *belongs* to the passion of *love*: the corresponding contrary of which is *hatred* in respect of evil. Secondly, if the good be not yet possessed, it causes in the appetite a movement towards the attainment of the good beloved: and this belongs to the passion of *desire* . . . and contrary to it, in respect of evil, is the passion of *aversion* or *dislike*. Thirdly, when the good is obtained, it causes the appetite to rest, as it were, in the good obtained: and this belongs to the passion of *delight* or *joy*: the contrary of which, in respect of evil, is *sorrow* or *sadness*."

Turning to the other or irascible appetite, here:

"The aptitude, or inclination to seek good, or to shun evil, is presupposed as arising from the concupiscible faculty, which regards good or evil absolutely. And in respect of good not yet obtained, we have *hope* and *despair*. In respect of evil not yet present we have *fear* and *daring*. But in respect of good obtained, there is no irascible passion: because it is no longer considered in the light of something arduous, as stated above. But evil already present gives rise to the passion of *anger*."

§ 6. *Psycho-analytical "Complexes"*

From all the preceding kinds of mental organization, which really were well known from the earliest times, let us turn to another whose modernity in general stands beyond question. For weal or woe, psychology here has at least done *something*. The conception is one that

has sprung from the study of mental disorders especially of the " neurotic " sort.

Leading in the field came Charcot. But the work of this master—like that of Socrates long before him—arrives chiefly at expression through the medium of his pupils.

Of these the first to take the field was Janet, with his classical studies of hysteria in 1887. In this strange disease, certain percepts, thoughts, volitions, feelings, or other mental contents seem mysteriously to be lacking. Previously such contents had been supposed to terminate. Janet now declares that they really continue to exist all the time, but split off from the remainder of consciousness. In this state of dissociation, they are called by Janet " subconscious or co-conscious psychological systems ". The following is one of his illustrative cases :

> " Achilles went for a few weeks on a business trip. On his return his wife found him quite changed ; he was preoccupied, sombre, silent, and hardly embraced his wife and child. After a few days, he became more silent than ever ; he became *unable* to speak. The doctor was consulted and said that the case was very serious. After a long examination, he said that it was a general weakness and perhaps diabetes. . . . Everything was done accordingly. As Achilles did not get any better, he went to another doctor, who ridiculed the diagnosis of the first one and pointed out the beating of the heart ; he asked Achilles *if he did not suffer from* acute pains in the left arm with suffering in the fingers. Achilles hesitated a moment, and then remembered having done so. Without further hesitation, the doctor pronounced the case one of angina pectoris, and said that the greatest precautions were necessary. All the symptoms of this disease appeared, and Achilles got worse and worse. At last one day he called his wife and child, kissed them despairingly, went to bed and did not move for two days.
>
> " Then suddenly his apparent death ceased ; he sprang up and burst into loud laughter, in a convulsive manner

which shook every limb and contorted his face for two hours, altogether satanic. To every question he replied, 'Do nothing, it is useless; let us drink champagne, the end of the world has come.'

"Janet was called in. Noticing that Achilles was quite preoccupied with his delusions, he managed to slip a pencil into his hand without his noticing it. Janet then stood behind him and told him to make some movements. Achilles did not make them, but wrote with the pencil, 'I will not.' And Janet whispered back, 'Why will you not?' 'I am the devil.' 'Ah, capital, then we can talk.' Thereupon Janet determined to get at the devil on the side where he has always shown weakness, his vanity. He said, 'I cannot believe in your power, unless you give me some proof.' 'What proof?' 'Lift the right hand of this poor man without his knowing it.' Immediately, the right hand of Achilles was lifted. After a little more of this sort of thing, Janet demanded of the Devil as last proof of his power to make Achilles go to sleep on the sofa. When he got to the sofa, Janet easily managed to hypnotise him (which he had been quite unable to do before). In this state nothing was easier than to make Achilles answer all questions and tell a long tale that Achilles did not know himself when awake. It appeared that Achilles had committed a grave sexual fault during his little trip. He was particularly preoccupied with thinking how he could conceal what he had done from his wife. He dreamt day and night of the most horrible maladies, getting always worse and worse; finally he dreamt that he was dead. After that, there was nothing more to dream except that he went to hell; the devil came and fetched him. His dream, up to then subconscious, began to invade his consciousness. Then all the rest developed that we have related."

Fascinating as are these and other writings of Janet, they strangely enough awakened but little response. The scientific harvest of such cases was to be the lot of another man; but then in plenitude. This was Freud, who, in his doctrine of "psycho-analysis", replaced

Janet's "subconscious system" by his own "unconscious complexes". He also used the new term "foreconscious" in the sense of that which is readily accessible to consciousness. The physical world he characterized as "non-conscious". Beginning with a publication in partnership with Breuer on Hysteria (1895), he proceeded to pour forth writings in almost unexampled profusion. And the success was proportional. No less an authority than Morton Prince writes as follows:

> "Freud did what no one else had succeeded in doing; he made the psychological world and the medical world take notice. . . . Psycho-analytic methods, observations, and doctrines soon displaced or obscured those of all other workers in the field, and, in fact, captured abnormal psychology. I know of one pathetic figure, a colleague of mine, whose heart was wellnigh broken. . . . Freudian psychology had flooded the field like a full rising tide, and the rest of us were left submerged like clams buried in the sands at low water."

Here is a typical case presented by Freud. It is one of homosexual attraction:

> "A beautiful and clever girl of eighteen, belonging to a family of good standing, had aroused displeasure and concern in her parents by the devoted adoration with which she pursued a certain lady 'in society' who was about ten years older than herself. The parents asserted that, in spite of her distinguished name, this lady was nothing but a cocotte. . . . One day it happened, indeed, as was sooner or later inevitable in the circumstances, that the father met his daughter in the company of the lady. He passed them by with an angry glance which boded no good. Immediately after, the girl rushed off and flung herself over a wall down the side of a cutting on to the railway line. . . . The explanation is as follows: The girl became keenly conscious of the wish to have a child, and a male one; that it was her father's child and his image that she desired, her consciousness was not allowed to know. And then—it was not she who bore

> this child, but the unconsciously hated rival, her mother. Furiously resentful and embittered, she turned away from her father, and from men altogether. After this first great reverse she forswore her womanhood, and sought another goal for her libido. . . . After her disappointment, this girl had entirely repudiated her wish for a child, the love of a man, and womanhood altogether. . . . She changed into a man, and took her mother in place of her father as her love-object. . . . Since there was little to be done with the real mother, there arose from the conversion of feeling described the search for a mother-substitute, to whom she could become passionately attached."

These complex experiences were taken to possess many further characteristics besides that of being unconscious. Conspicuous above all others is the dominance of sexual motives. Already Charcot, it appears, had regarded these as always present in neurotic disturbances. They figure in a large proportion of the cases studied by Janet.

But when Freud came into the scene he took the very original step of proclaiming sex—in the broadest sense of this word—to constitute the *sole* object of human volition.

After this fashion the classical triumvirate of fundamental motives, which were directed to the preservation of Self, Family, and Society (see above, p. 177), were startlingly reduced to the second of these alone. Having taken this great initial step of discarding two out of the three fundamental motives, the further development of the psycho-analytic doctrine has largely consisted in reintroducing them. To the love of family Freud proceeded to add (in 1914) the love of self, investing this tendency with the romantic name of Narcissism. And eighteen years later he takes another stride, far more momentous still. He brings back the other great motive which he originally left out. This consists in the higher motivation which rises above the interests of

both self and family to that of society; it is the volition which acts by such means as rational will, self-control, or conscience; it roughly coincides with the Charioteer in which had culminated the teaching of Plato. All this most ancient form of orexis is now presented to us again under the brand new title of the "super-ego".

Within this broad scheme imputed to mental structure, Freud introduced several important special features. And these—although primarily matters of function, and therefore kept by us for main discussion later—are not without important effects on structure also. Of these further features we can here give little more than the names. There are the psycho-analytical methods of probing the unconscious by means of "free association" and of dreams. And there are the so-called "mechanisms", especially those entitled "displacement", "symbolism", and "sublimation".

Finally, we must mention the astonishing ways in which Freud has extended his doctrine to quite other fields; above all, to anthropology.

As for his numerous disciples and followers, these have for the most part remained very faithful to him. But at least two of them soon broke away; Jung and Adler, with their strangely entitled "analytic" psychology and "individual" psychology. Adler adopts much from the philosophy of Nietzsche and makes the dominant human motive consist, not in sex, but in the "will to power"; and so he derives neurotic disorders from fear of inferiority. Jung for his part turns largely to mysticism. He extends the region of the unconscious so as to contain, not only the "personal", but also the "collective" mind.

We have finally to chronicle how this astonishing doctrine has been generally received. It would appear that the great majority of competent psychologists have resolutely rejected or even ignored it. But practising

psychiatrists, on the other hand, seem to be turning towards it in increasing numbers. As for those who are masters of both fields, we find a cautious and qualified adherence to the doctrine by such a pre-eminent authority as William Brown. Not less calculated to make its opponents at least stop and think is the weighty support afforded to it by Flugel. Perhaps the most judicial attitude of experts towards it is that of B. Hart, which he calls a " benevolent scepticism ".

As for the reception accorded to this psycho-analysis by common sense, this has been largely swayed by the fact that—as might perhaps have been expected from its origin in neurotic disorder—it is full of descriptions which normally, for good biological reason, excite violent emotions of disgust. In these circumstances the attitude of the plain man towards the doctrine may be expressed in the well-known lines of Pope :

> " It is a monster of so frightful mien
> As to be hated needs but to be seen :
> Yet seen too oft, familiar with her face,
> We first endure, then pity, then embrace."

§ 7. *"Descriptive" and "Understanding" Psychologies*

From all this clash of doctrines in which chiefly the psychiatrists are embroiled we will pass on to a controversy which mainly affects the academic psychologist. Many of these, as mentioned in Chapter IV, strongly object to the use of analysis in psychology. The present chapter is opportune for considering what they have to say in support of this hostility.

A lead in the attack was taken by Dilthey, who urged that psychology is of two kinds, " explaining "(*erklärend*) and " describing " (*beschreibend*) :

> " The explaining psychology, which at present claims such a high degree of work and interest, expounds a

> causal connection that proposes to make all the phenomena of mental life intelligible."

Its characteristic nature consists in that

> " It is convinced that it can bring about a perfectly complete and lucid knowledge of the mental phenomena out of a limited number of unequivocally determined elements."

As opposed to this " explaining " psychology, Dilthey strongly advocates what he calls the " describing " sort. This represents the constituents and connections of a human life, as *bound together* in a single system. In the works of poets, in reflections on life as these have been expressed by great authors—a Seneca, a Marcus Aurelius, an Augustine, a Machiavelli, a Montaigne, a Pascal—in these lies a comprehension of Man in his entire reality. All explaining psychology " remains far behind it ".

" *Understanding* " *Psychology.*—An immediate descendant from the " descriptive psychology " of Dilthey, but with claims to a still more extensive scope is the widely and warmly advocated " understanding " psychology of Spranger.

To exemplify this he chooses the case of Moses in wrath against the Jews. Here, he says, the merely explaining psychology would analyse the mental state of Moses according to the species of ideas, feelings and volitions involved, the course and rhythm of these, their tension and relaxation. Such a method, he goes on to say, *destroys* the meaningful connection of mental process. Its procedure is like the vivisection of a frog. He who cuts up this animal does indeed acquire knowledge of its internal structure and also, by reflection, of the physiological function of its organs. But he ought not to expect that he can put the pieces together again and thence generate a living frog.

To escape from this ill-starred analytic procedure, the " understanding " psychologist recommends that the analysis of the experience of Moses into ideas and feelings should be " taken for granted ", and that inquiry should only be made for that particular " motive of his which finally turns the scale ".

The other device of the " understanding " psychology is that the motives should be traced back to the profound " value-structures ", which are most independent of the self, and which deal not so much with facts, as rather with ideals. These are commonly taken to be of three kinds: logical, aesthetical, and ethical. Spranger expands them to six: cognitive, aesthetical, social, economic, religious, and that of " power ".

Thus both authors would seem to be principally moved by the same assumption that we have found so common and so insistent; namely, that in psychology analysis precludes synthesis: that, if once the mind has been picked to pieces, it can never be put together again without some disastrous impoverishment.

Now, the present stage of our chronicle would seem opportune for submitting this assumption to verification. All this Section C has been primarily devoted to recording the analyses which have been made. Of the fatal impoverishment which they are said to engender there seems no trace.

Conversely, where is the vitalizing enrichment claimed for the (allegedly) non-analytic "describing" and "understanding" psychologies? Dilthey for his part, as we have just seen, proffered to us the study of casual literary statements. Strangely enough, he seems not to have noticed that the plea for such statements had already several years before been espoused by another author; that this earlier advocate had handled the cause in a more fundamental way, and thus had gained widespread notice and applause; above all, that this very man who

had been so successful with those statements alleged to be beyond the reach of analysing psychologists was in point of fact none other than J. S. Mill, *the acknowledged protagonist of the analytical method.*

Be this as it may, the claim that such literary descriptions supply "a comprehension of Man in his entire reality" would seem to be strangely excessive. I pick at random the celebrated aphorism of Marcus Aurelius:

> "Nothing happens to anybody which he is not fitted to bear."

How this is going to be so amazingly helpful to the teacher, the psychiatrist, the priest, or the lawgiver in dealing with serious mental trouble, is not too clear.

As for the assistance offered by Spranger, in the reference of motives to "structure-values", cognitive, aesthetical, and so forth, these do not seem to involve anything more than just the "principles" to which our analytical procedure has already led us.

§ 8. *Nature of Mental Organization*

In all the ways described in this chapter, the experience of a person becomes what is called by such names as "organized" or "integrated". What does this really mean? To be organized, the dictionary tells us, is to have an orderly structure. In what way, then, have the experiences considered by us been "orderly"?

In the first place, there has been much more interconnection. To the primary tendencies have been added secondary ones. Ties not present at the start have been introduced by habit. Objects not desired for their own sake have become so for the sake of others. Values which originally were attached to particular things are broadened out to generalities and abstractions. Again, orectic tendencies have been supplemented by virtue

of orectic logic ; love of an object has produced fear, or anger, on its behalf.

In the second place, these extended interrelations are usually such as to make for stability. Habits become fixed. Principles are essentially permanent.

And in the third place, multiple tendencies are compounded. An object desired for two reasons is desired the more. If liked on one ground and disliked on another, some sort of balance is struck.

Here, then, are three definite changes of orectic structure which appear to come under the name of organization. The constituents become more interrelated, acquire more stability, and act more conjointly. In consequence of these three changes, it tends to become more sharply differentiated.

Is not this the general story about orectic organization? Compare, as well as may be, a grown-up person with a small child. The former has, of course, a vastly richer and more individual outlook on his environment. But this is a matter of cognition, not of orexis. Again, the adult sets widely different and more individual values on things. But this fact in itself is a matter of quality, not of organization. For this latter, we seem forced back to the three said features of interrelation, stability, and composition.

In this chapter we have recorded the principal findings of psychology on the nature of mental organization or integration ; that is to say, with structures more elaborate than that of mere stimulus and response.

The chief structures involved are those arising from habit, means and ends, principles, temperament and sentiment. But in general, all these have been well known from the earliest times.

Highly modern, however, but as yet still labouring under much doubt and dispute, has been the discovery of the psycho-analytic complexes.

In all cases, the essential nature of the organization seems to consist of nothing more than interconnection, stability, and composition. Its study, far from being inconsistent with the analytic procedure, would appear to be indispensably founded upon this.

CHAPTER XXI

UNCONSCIOUS MIND

§ 1 Ancient Beginnings of Doctrine. § 2. Revival at the Renaissance § 3. Modern Developments. § 4. Alleged Self-Contradiction § 5. Reproach of being Hypothetical. § 6. Crucial Questions of Fact. § 7. Upshot.

§ 1. *Ancient Beginnings of Doctrine*

Among the various mental organizations considered in the preceding chapter were the "subconscious" or "unconscious" neurotic "complexes". Let us now turn to the psychology of the unconscious psyche in general. What has been said as to whether and how a person, besides the mental experiences of which he is aware, undergoes others of which he remains unaware? We are back at the problem which we already had to face when considering what psychology is about (Chapter I).

Furthermore, to portray the rise of the doctrine that experience may occur without knowledge of it, there is an indispensable preliminary, too often overlooked. We ought to consider the origin of the notion that experience is or may be *with* knowledge. And herewith we are brought back to the topic of introspection, already considered by us with reference to psychological methods of procedure (Chapter IV).

We found there that this idea of self-observation is extremely familiar to common sense and, in fact, constitutes one of the pillars of society. Nevertheless, as

we also saw, the idea has by no means been accepted by all philosophers.

As an early case where it did find acceptance may possibly be taken the famous saying of Socrates, Know Thyself. This is carried on by the sequel in the Charmides of Plato, who there converses about " the knowledge of oneself, to know what one knows, and what one does not know ". It is more accentuated in the Philebus of the same author, when he says that a person possessing neither mind nor memory nor science would be ignorant even as to whether he had any joy or not. More dubious is the relevancy when a little later on he declares that some sensory stimuli " are extinguished before they enter thoroughly into the soul ".

Admirably definite, however, is the statement of Aristotle :

> " In addition to actually seeing and hearing we also perceive that we see and that we hear."

A further advance was made by the Stoics, when they generalized the previously scattered and unsystematic observation of self-knowledge and gave to it a single name, *συνείδησις*. This, as shown by the structure of the word, indicated originally that mental experiences are accompanied by some knowledge of their occurrence.

Still more momentous, however, was the progress made by Plotinus, who ascribed to the mind (over and above any discursive knowledge) the powers of what he calls *συναίσθησις* and *παρακολούθησις*. " Thought ", he says,

> " reflects upon itself," it " so to speak, turns backwards and reflects, as the image of an object placed before a brilliant polished mirror reflects itself therein."

Thus the mind is not only active, but also holds up to itself a mirror of its activities ; it does this directly by its own virtue and without any mediating agency, such

as inference, memory, argument or communication. His *συναίσθησις* applies to this mirror knowledge in the case of sensory perception; his *παρακολούθησις*, in that of reasoning (and probably also that of desire). But the vital importance of his doctrine for our present purpose is that the two things at issue, the experience and the knowledge of it, are not merely distinguished by abstraction; they are regarded as actually separable and even antagonistic events. He writes:

> "While we are awake, it often happens to us . . . to meditate and to act, without being conscious of these operations at the moment that we produce them. When for instance we read something, we are not necessarily self-conscious that we are reading, especially if our attention be fully centred on what we read. . . . It would seem that the consciousness of any deed weakens its energy, and that when the action is alone (without that consciousness) it is in a purer, livelier and more vital condition."

In this way, he proceeds also to supply an explanation; and moreover, one that still holds its ground. The occurrence is referred to "attention", or more generally, to "energy". The more of this a person devotes to any deed, the less he has over for perceiving that he does it.

As regards the subsequent course of thought and writing on the subject of self-knowledge a very notable occurrence was that the Greek *συνείδησις*, as also the kindred *συντήρησις*, was eventually rendered in Latin as *conscientia* (concomitant knowledge). From this were derived in English, on the one hand the general "consciousness", and on the other hand the specially ethical "conscience".

Another development of the same topic was connected with the concept of "inner sense" (*sensus interior*). After being used by Augustine in much the same meaning as *συναίσθησις* it was depicted by Avicenna as

a group of *five* different cognitive faculties, including those of imagination, estimation, and memory. With Locke, however, there was a return to what we are here considering. For him " internal sense " is only another name for " reflection ", and it means " the perception of the operations of our own mind, within us " (II, i. § 4). In the further metamorphoses of this concept—for instance, that of Kant—we are not here interested.

In any case, the whole of this work subsequent to Plotinus was devoted to showing that a person's mental operation and his perception of this operation are two distinguishable things. The possibility that the operation could occur *without* any perception of it was either overlooked, or even strenuously denied. Locke himself, despite his making the " inner sense " or " reflection " one of the main pillars of his psychology, nevertheless declares it not to constitute any separable event or power. He writes that it acts

> " only by that consciousness which is inseparable from thinking, and, as it seems to me, essential to it, it being impossible for any one to perceive, without perceiving that he does perceive."

The same standpoint was, strangely enough, adopted even by Hamilton, the great champion of the unconscious. He makes it the occasion of a keen attack on Reid for having considered consciousness as " a separate and specific faculty " :

> " On the contrary," he says, " it is to be regarded as a general expression for the primacy and fundamental condition of all the energies and affections of our mind."

Again, he declares that a mental operation and the consciousness of it

> " are, in fact, the same thing considered in different relations, or from different points of view."

Nevertheless he himself—more than anyone else—proceeds to lay down ten definitely formulated limitations, by which the two, knowledge itself and consciousness of knowing, are fundamentally distinguished!

But here arrived one of the many troubles that have befallen mental science. Several psychologists, particularly adherents of associationism, had taken a step further. From the position that consciousness is a " primary condition " of mental operation or experience, they slipped into simply identifying the two: the consciousness simply *is* the mental experience (see Chapter I, p. 25). In time this confusion became general. And so the work of a thousand years—including Hamilton's own ten characteristics—passed into oblivion.

To fill up the gap left by the loss of the older meaning of " consciousness ", the new word " introspection " was introduced. Its chief difference from the older one seems to be that it is often restricted to the self-knowledge that is gained by a special effort.

As for the word " conscious ", its original and its later meanings are so blended as to produce a maximum of equivocation and confusion. Small wonder if the behaviourists do complain that they get muddled over it.

§ 2. *Revival at the Renaissance*

Let us now go back to the doctrine that mental experience is not only distinguishable from knowledge of it, but even can occur without such knowledge. After the surprising development of this view by Plotinus in the third century A.D., there seems to have been an almost unbroken silence until the Sixteenth Century. Then we find Montaigne speaking significantly of desire and thought as being sometimes " imperceptible ". But yet another century had to lapse before general interest was aroused by Leibniz, who said the same thing with an

extra syllable; he stated that mental processes may be "in*ap*perceptible".

This philosopher presents to his readers an imaginary dialogue with Locke. He began by making the latter say:

> "It is not easy to conceive that a thing can think and yet not perceive (*sentir*) that it thinks."

To this objection Leibniz replies hopefully:

> "That without doubt is the crux of the business and the difficulty which has embarrassed clever people. But here is the means of escape."

This solution which he offers is the following:

> "It is necessary to consider that we think of many things at a time, but we only notice (*prenons garde à*) the thoughts which are most distinct." . . "All impressions have their effect, but not all the effects are always noticeable. When I turn to one side rather than to another, this very often happens by a chain of little impressions which I do not perceive (*dont je ne m'aperçois pas*). All our not deliberate actions are the results of a concourse of little perceptions. And even our customs and passions . . . derive from them."

In such fashion Leibniz, like Plotinus long before him, explains the matter as a lack of attention. But this time an additional reason is given. A person is unconscious of his impressions, not only because of not attending to them, but also because of their being in themselves "small".

On this comparatively modest foundation Leibniz, again like his predecessor, proceeds to build up a world of philosophy. Out of his "little confused sentiment" is constituted the greater part of each of his "monads". And of these, again, is made up the Universe.

The influence of this Leibnizian doctrine of unconscious mind is generally said to have been profound and

enduring in Germany. In point of fact, however, not much about any such thing is to be found with his most faithful follower Wolff, although the latter does consider attention and its degrees very thoroughly. Kant, on the other hand, gives us at any rate a chapter on :

> " The Percepts (*Vorstellungen*) which we have without being aware of them."

Such percepts, he tells us, are known solely by way of inference. But his further description of them is limited to calling them " dark " (*dunkel*) in contrast to clear (*klar*). As illustrative examples he curiously gives us sexual innuendoes :

> " How much wit has not, in all ages, been lavished in throwing a thin veil over that which is indeed loved, but which brings man into such a close kinship with the general race of animals, as to excite a feeling of shame. The expressions are not allowed in fine society to stand out undisguised, although they show through well enough to be laughed at "

Much profounder was the conception of Herbart. According to him, some percepts are and others are not opposed to each other (*entgegengesetzt*). Of the former kind are red and blue, sour and sweet. Of the latter kind, a tone and a colour. Now those which are opposed, he says, " resist " one another, each being bent on " self-preservation ". In so far as this happens,

> " the perception must give way, without being annihilated. That is to say, the actual perception transforms itself into a striving to perceive."

In this fashion, psychology is converted into what he calls the " statics and mechanics of the spirit ". Ideas become unconscious, not, as Plotinus had imagined, because of failing to attract enough energy, but because of being kept out by other ideas.

A great advance in breadth of view arrived with Hamilton. By him the relevant facts were for the first

time marshalled systematically (1859). The unconsciousness was marked off in three degrees of " latency " :

> " In the first place . . . I know a science of language, not merely when I make a temporary use of it, but inasmuch as I can apply it when and how I will. . . . In regard to this, there is no difficulty or dispute.
>
> " The second degree of latency exists when the mind contains certain systems of knowledge, or certain habits of action, which it is wholly unconscious of possessing in its ordinary state, but which are revealed to consciousness in certain extraordinary exaltations of its powers. This phenomenon has been almost wholly neglected by psychologists."

He quotes the following instance from Dr. Rush :

> " A female patient of mine who became insane after parturition in the year 1806 sang hymns and songs of her own composition during the later stage of her illness, with a tone of voice so soft and pleasant that I hung upon it with delight every time I visited. She had never discovered a talent for poetry or music in any previous part of her life."

He then proceeds to consider the question in relation to the

> " third class or degree of latent modifications—a class in relation to, and on the ground of which alone, it has ever hitherto been argued by philosophers."

The problem in regard to this class is—Are there, in ordinary, mental modifications—i.e. mental activities and passivities, of which we are unconscious, but which manifest their existence by effects of which we are conscious ?

In all this interesting advocacy of unconscious mental process, however, there is one notable omission. The author does not appear to give any account of why it occurs. But since he warmly supports Leibniz, we may surmise that he joins the latter in attributing the phenomenon, at any rate partly, to lack of " attention ".

If thus Hamilton devotes not a little consideration to the topic of the unconscious, Hartmann (ten years later) may be said to have indulged in an orgy of it. The human mind is dominated, he finds, by the " unconscious in sexual love ", the " unconscious in feeling ", the " unconscious in character and morality ", the " unconscious in aesthetic judgment and in artistic production ", the " unconscious in thought ", the " unconscious in the origin of sense-perception ", the " unconscious in mysticism ", and the " unconscious in history ". Descending even to bodily life, he tells us of the " unconscious will in the independent functions of the spinal cord and the ganglia ", the " unconscious ideation in the execution of voluntary movement ", the " unconscious in instinct ", the " unconscious in reflex actions ", the " unconscious in the reparative power of nature ", and the " plastic energy of the unconscious ".

All this, as he himself admits, might easily mislead his readers into supposing that he undervalues the *conscious*. But no :

> " Wherever consciousness is able to replace the Unconscious, it *ought* to replace it, just because it is to the individual higher, and such objections to it as that the constant applications of conscious reason renders pedantic, costs too much time, etc., are mistaken, for pedantry only arises from *imperfect* use of reason, when in applying general rules one does not take account of the *particular differences*, and reflection costs too much time only with deficient material of knowledge and unsatisfactory theoretical preparation for practice, or with irresolution, which can only be obviated by the use of reason itself."

The most essential difference of function between the two kinds of process is said to be in respect of inventiveness :

> " Conscious reason, namely, is only denying, criticising, contrasting, correcting, measuring, comparing, combining,

> classifying, inducing the general from the particular, ordering the particular case according to the general rule; but it is never creatively productive, never inventive. Here man is entirely dependent on the Unconscious."

About sex, he gives us a notable warning:

> "One ought to be quite particularly on one's guard against making the female sex too rational. . . . Woman namely is related to man, as instinctive or unconscious to rational or conscious action; therefore the genuine woman is a piece of Nature, on whose bosom the man estranged from the Unconscious may refresh and recruit himself, and can again acquire respect for the deepest and purest spring of all life."

Eventually, our author arrives at his "Ultimate Principles". For him there are two and only two original elements in the world: the "Idea" which he held to have been one-sidedly stressed by Hegel; and the "Will", no less one-sidedly preferred by Schopenhauer. A dualism, obviously akin to ours of "cognition" and "orexis". But for Hartmann the Idea is only conscious under certain conditions; namely, "when the radiating Will meets with a resistance by which it is checked or broken". Consciousness essentially consists in

> ". . the stupefaction of the will at the *existence* of the idea *not willed and yet sensibly felt by it.*"

As for the Will itself, this is said

> ". . . *never* to be able to become conscious."

Among the many virtues of the Unconscious are "All-oneness" and "Supreme Wisdom".

After being wound up to this dramatic climax, one is surprised to notice here and there indications that after all the unconsciousness is only a matter of degree:

> "Will, which gives evidence of itself in the independent functions of the spinal cord and the ganglia, is by no

> means to be at once declared to be in itself unconscious; we must rather provisionally assume that for the nerve-centres from which it proceeds it certainly may become more or less clearly conscious. On the other hand, compared with the cerebral consciousness which a man exclusively recognises as *his* consciousness, it is certainly unconscious, and it is accordingly shown that *there exists in us an unconscious will.*"

But then amazingly enough in a later work of his, all this "relative unconsciousness", or "subconsciousness" as he now calls it, becomes quite subordinate. Instead he takes up and expatiates upon the "absolute Unconscious". This is not, like the other, a "phenomenon", but something sharply distinguished, an "activity" (*Tätigkeit*).

§ 3. *Modern Developments*

Contemporary with, or even older than, the philosophical study of the Unconscious by Hartmann was the already mentioned clinical study of it by Charcot. In the latter case, the material studied was the behaviour of hysterical patients. Charcot's pupil, Pierre Janet, demonstrated that

> "The mind can be so dissociated as to exhibit two or more independent foci of activity, in the sense that synchronous manifestations of different intelligent activities, of one of which the personal consciousness is unaware, can be obtained under experimental and pathological conditions."

A few months later such a dissociation was demonstrated experimentally by Gurney in England. Two years afterwards, the matter was further confirmed and elucidated by Binet in France, by James and by Prince in America. After another couple of years (1891), Breuer

and Freud discovered the same thing. But, as Prince himself tells us :

> " There remained the application of the principle to the large number of complex conditions and the working out of the *why*, the *how*, and the *what*—*why* the mind is disrupted, and its mental processes disturbed ; *how*, by what mechanism this is done and the psycho-physiological phenomena produced ; *what* particular subconscious processes are the causal factors in specific conditions ? Here, in answer to these questions, divergent interpretations have arisen and created the different schools to which I have referred."

Janet for his part suggested that the inability to retain hold of the dissociated part of experience was due to an " exhaustion " of the personal consciousness.

Freud, on the other hand, declared that the split-off unconsciousness was in this state owing to its " repression " by the personal and conscious part of experience. And just this change of theoretical interpretation of the same observed facts seems to have furnished him with the key to all the essential developments of his doctrine.

Meanwhile, the interests of Prince led him especially to his classical studies of " multiple personality ". In his most famous case, Miss Beauchamp, there were three secondary personalities ; these were

> " sharply differentiated in traits, health, educational acquisitions, tastes, feelings, etc., yet all derived from one and the same person and alternating with one another."

The first of the three was :

> " the ' *Saint*,' characterized by extreme piety, religious scruples, and moral traits that are commonly regarded as the attributes of saintliness—meek and dependent, never feeling anger or resentment or jealousy, bearing her hard lot with almost inconceivable patience, never rude or uncharitable, never self-assertive, she might well be taken as typifying the ideal of Christian morality."

The second was :

> " The ' *Woman* '—strong, resolute, self-reliant, ' sudden and quick in quarrel,' easily provoked to anger and pugnacity, resenting interference and obstruction to her own will, determined to have her own way in all things at all costs, intolerant of the attributes of saintliness ; . . . she belonged to womankind and to the world. She may be called ' the *Realist.*' "

The third was :

> " Sally, the *child* in character, thought and deed—a mischievous delightful child, loving the outdoor breezy life, free from all ideas of responsibility and care, and deprived of the education and acquisitions of the others —belonged to childhood to which she was in large measure a reversion."

As for the research of Gurney, followed as it was by that of Podmore, F. Myers, and the Society for Psychical Research, this led chiefly to a study of such phenomena as hypnotism, trance, hallucination, vision, and " phantasms " (of both the living and the dead).

As more or less akin was regarded the part played by unconsciousness in the manifestations of genius. F. Myers writes that

> " an ' inspiration of Genius ' will be in truth *a subliminal uprush*, an emergence into the current of ideas which the man is consciously manipulating of other ideas which he has not consciously originated, but which have shaped themselves beyond his will, in profounder regions of his being."

But there is said to be another side of the matter :

> " Hidden in the deep of our being is a rubbish-heap as well as a treasure-house."

There is also an intermediate, where genius and insanity come near together :

> " In the realm of genius—of uprushes of thought and feeling fused beneath the conscious threshold into

> artistic shape—we get no longer masterpieces but half-insanities—not the Sistine Madonna, but Wiertz's Vision of the Guillotined Head; not *Kubla Khan*, but the disordered opium dream. Throughout all the work of William Blake (I should say) we see the subliminal self flashing for moments into unity, then smouldering again in a lurid and scattered glow."

§ 4. *Alleged Self-Contradiction*

Despite all its success, however, the doctrine of the unconscious—even in connection with psycho-analysis, and indeed especially in this connection—still suffers from the clash of violently conflicting opinions.

Let us consider some of those which apply to the doctrine in general, passing over the many which beset each particular form or application of it.

Most grave and most confidently uttered is the objection that the very idea of unconscious consciousness presents a contradiction in terms. Such an objection we have already seen urged, not only by Locke, who opposed mental unconsciousness, but even by Hamilton, who so strongly defended it. After elaborately demonstrating that the great bulk of perceptions, ideas, and so forth are unconscious, he goes on to say:

> " Perception, and idea, and representation, all properly involve the notion of consciousness; it being, in fact, contradictory to speak of a representation not really represented—a perception not really perceived—an actual idea of whose presence we are not aware."

His plea was that when he had spoken of unconsciousness, he had only intended to say " latent modification " (whatever that may be).

Many other authors have followed suit. Lewes, for instance, wrote:

> " The practice, too frequent, of speaking of actions as

> *un*conscious, is more than a contradiction in terms. 'Unfelt feelings' are altogether inadmissible."

Something of the sort was said even by Hartmann himself:

> "It certainly is a self-contradiction to speak of psychical phenomena which are not conscious for any consciousness."

He only evades, or thinks to evade, the difficulty by pleading that when he calls a phenomena "unconsciousness" he really means that it is *not very* conscious!

But really, most of this objection seems to be founded on the unfortunate ambiguity which we have seen vitiate the word "consciousness"; namely, its meanings of mental experience and of knowledge of this. Undeniably, there is a contradiction in a "feeling not felt". But to assert there is one in a "feeling not known" would appear to be groundless.

§ 5. *Reproach of being Hypothetical*

Among other and weightier objections to the concept of unconscious mind is that of being "superfluous" (K. Dunlap), or even "mythological" (Wundt). Since it admittedly escapes observation, then why suppose it to exist at all? Why not employ the razor of Occam: "things are not to be multiplied more than needful"?

Herewith we bring upon ourselves the whole question as to the scientific admissibility of hypothesis. Now, the attempt has indeed been made to confine psychology to bare experience devoid of all hypothetical constituents whatever; but the result was not encouraging (see Chapter IV). It would appear that such constituents are as indispensable to psychology as they certainly are to the physical sciences. All that can reasonably be demanded is that no more hypothesis should be employed

than will, so to speak, pull its own weight. A balance must be struck between, on the one hand, the need of introducing it—which arises when the bare observations lack continuity and lucidity—and, on the other hand, the degree of it introduced. This degree is very variable. B. Hart thinks that with Janet and with Morton Prince it is very moderate; but with Freud and Jung, inordinate.

Akin to the preceding objection is the one frequently urged that where consciousness ceases we should turn to physiology. Instead of the unconscious mind, we ought to deal with unconscious cerebration. But in truth the latter is no less hypothetical than the former. Most of us do indeed agree that some such cerebral processes occur. But we may deny that these have *as yet* been observed, or even plausibly conceived. Indeed, some accounts given of them might be described as crazy psychology translated into mythical physiology.

However, it may perhaps be feasible to discover a formula in which the friends and the enemies of hypothesis could come to terms. Instead of definitely asserting that unconscious mental processes exist, the proposition at issue may only maintain that the conscious processes behave "as if" there were also unconscious ones going on.

§ 6. *Crucial Questions of Fact*

In this way it seems possible to bring the matter down to brass tacks. Putting aside the quibbles about contradictory terms and the purist taboo of hypothesis, we are left with some comparatively plain questions.

First and foremost, does or does not the mental experience which a person observes in himself display discontinuities that seem explicable by further experience similar in kind save that he cannot observe it?

In the case of pathological experience the answer would seem nowadays to be almost universally in the

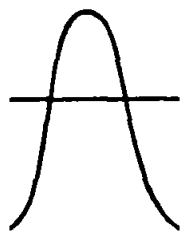
affirmative. But in the case of normal experience the verdict is less unanimous. The following are some instances, however, that might be quoted in support. When judging which of two successive tones is the higher, the earlier tone often seems to have completely vanished from consciousness, although its presence in some fashion or other would seem to be indisputable. Much the same thing is frequent in recognitions; a person knows that he has seen a thing before, although he has no conscious remembrance of it. Again, localization of sound is largely based on the comparative intensities with which the sound reaches the two ears respectively, yet these intensities themselves are not to be observed in consciousness.

Or turn from perception to thought. If a person is asked whether he has ever been to China, he will generally be able to answer at once, either positively or negatively. In the latter case, he must at least have somehow recalled the general outline of his past career; but in consciousness no sign of this is manifested. To take the next example from the sphere of volition, it has been abundantly proved that a person can form a resolution and be guided by it in his conduct long after the resolution has disappeared from his conscious mind. Such examples could be found, the writer believes, to permeate every sort and description of mental process.

Next, can any good reasons be furnished as to why the experience should in the one case be observable, but in the other case not so? In reply, it can be said that some at least of the reasons that have been given for the lack of consciousness would seem to be plausible enough. Thus, Plotinus, and many others, have attributed the lack to attention elsewhere. And surely this is an acknowledged ground for loss of cognition of any kind. Why not, then, for failure to apprehend one's own experience? Again, Freud and his followers

have referred the loss of consciousness to volitional repression. Does not everyone find that in good truth he possesses some power to repress his cognition voluntarily? But not all other attempts at explanation have been so well supported by general psychology. An instance is Janet's account of dissociation as due to exhaustion. This latter state has been thoroughly studied in both natural and experimental fatigue, but has displayed nothing in the least analogous to the splitting of consciousness into two separate streams.

Finally, the question arises as to the nature of the spheres to which the unconscious mind extends its



Non-consciousness

dominion. Some writers have credited it with powers so extravagant in themselves, and so feebly evidenced, as to be quite incredible. But other authorities have stressed, not so much the extraordinary nature, as rather the wide extent, of the unconscious processes. They have declared this extent to be very much greater even than that of the conscious ones. And large as is this claim, it would seem to be abundantly corroborated. The general structure of experience may be represented by the above figure, where horizontal distance stands for range of mental content, whilst vertical height is accessibility to consciousness.

§ 7. *Upshot*

At last we have arrived at a region where psychology has not only departed widely from common sense but—

to all appearances—gone far ahead of it. Much perhaps of the current doctrines of the unconscious is confused, inaccurate, and even extravagant. But at any rate enough seems to have been achieved already to effect a revolution. Here, at last, that which in other sciences is the general rule, occurs for once in psychology also: to wit, all the older literature has become more or less obsolete.

CHAPTER XXII

"I" AND "SELF"

§ 1. The Problem. § 2. Common Sense. § 3. Many Concurring Psychologists. § 4. Trouble about Substantiality. § 5. Trouble about Persistence. § 6. Trouble about Simplicity. § 7. Trouble about Consciousness. § 8. *Two* Selves. § 9. Scientific Progress. § 10. Upshot.

§ 1. *The Problem*

Throughout the preceding analysis and synthesis—but only for convenience, as we cannot talk of everything at the same time—there has been a capital omission. We have been playing *Hamlet* without Hamlet. We have left out the chief actor; indeed, it may be held, the sole actor. This missing constituent is said by some authorities to have been irretrievably lost when the mind was analysed; to have been killed when this was dissected. But in truth, on the contrary, the temporary gap can now quite well be filled in again.

This fateful constituent feature of the psyche is none other than one's own Self. It is that which a person names "I". Everywhere and in every language the usage of such words is superabundant. A well-known story tells that the speeches of a certain politician were printed incompletely because the stock of "I's" ran short. The very nursery rings with the word. No less pervasive of human intercourse are, naturally, the kindred terms "you", "he", "mine", "yours", "his", etc. Even the Latin versions have retained considerable currency; we still often speak of egoism

and egotism; we are apt to stress the contrast between *meum* and *tuum*. As for the "self", this is widely held to afford the mainspring of human action. Certainly it supplies some of the principal concepts employed in depicting character. For instance, "selfishness", "self-control", "self-reliance", "self-admiration", "self-righteousness", "self-abasement". Another way in which a similar idea comes to expression is when we talk, not only of thinking, loving, experiencing, and so forth, but also of the thinker, the lover, the experiencer.

All the more curious and disappointing is it to find that psychologists have been wholly unable to agree as to what sort of thing is here really indicated. In the standard dictionary of Eisler, we read:

> "The history of the concept of an 'I' (*Ich-Begriff*) shows that the I is taken to be: now, soul, or substance; now, action, synthesis, unity; now, feeling or will; now, a complex, a product of association; now, the body; now, consequently, something original, real, prime; now, something derived, a product, an appearance, a semblance."

Far from there being any agreement about the facts, there is but little even about the meanings of the words. The eminent Bradley, for instance, writes in his chief work:

> "Self has turned out to mean so many things, to mean them so ambiguously, and to be so wavering in its applications, that we do not feel encouraged. A man's self might be his total present contents. . . . Or it might be the average contents together with something else which we call dispositions. From this we drifted into a search for the self as the essential point or area within the self; and we discovered that we really did not know what this was. . . . Then, under personal identity, we entertained a confused bundle of conflicting ideas. Again, the self, as merely that which for the time being interests, proved not satisfactory. . . . In the division of self as against the not-self, we found that the self had no contents

> sufficient to make it a self. . . . Finally, we dragged to the light another meaning of self . . . any psychical fact which remains outside any purpose to which at any time psychical fact is being applied."

And the author, be it noted, seems to pen these lines in all seriousness.

§ 2. *Common Sense*

Such, then, is the present problem, the situation in which philosophy and scientific psychology have now landed us. Let us next see in what manner it has brought us there. And we will begin by looking how the matter stood before ever it was taken up by the enterprise of psychological science. Once more we will go back to common sense, but this time in somewhat more detail.

Here, as mentioned, all the terms we have been considering—in particular "I" and "Me"—are already familiar enough to everybody. Let us, then, ask what they are intended to signify. In vain should we insist upon the plain man supplying his words with formal definitions. But there remains another and more practical way to find out their meaning for him. We can examine the context in which he actually employs them.

The material universe as conceived by our ordinary man—and, indeed, by most philosophers—consists of matter that has qualities, properties, or other attributes. Thus, sometimes it is taken to be exerting force; sometimes, to be passively suffering force; and sometimes, again, it is regarded as merely in a "state" irrespective of interaction with anything else. But in all cases alike the attribute is thought to be unable to exist without the corresponding matter. For an activity without anything active; a passivity without anything passive; a state that is not the state of something or other—all these seem to the plain man quite absurd.

And closely analogous to this, his concept of the material world, is that which he forms of his mental experience (see Chapters XVIII and XIX). As to which of the two concepts is primary with him and which secondary, we need not here inquire. But we must insist that, in the mental just as much as in the material case, he with confidence takes the attributes (whether activities, passivities, or bare states) to be necessarily those of some entity; something which is metaphorically said to "underlie" them; something analogous, that is to say, to the material "substance". This underlying something it is that he calls "I".

With this use of the pronouns may be compared that of such terms as "person" or "individual". Whilst the pronoun means the underlying entity as opposed to its activities and so forth, the "person" is generally made to include *both* the entity *and* the attributes. As for the word "Self", this and its compounds such as "I myself", seem to be applied, either like the pronouns, or else like the term person.

At this point, it must be admitted, there is apt to arise a troublesome equivocation. The terms "I", "me", and so forth are not only applied to the said mental entity, but often also to the body; and more often to both. A man not only says "*I* think and feel", but also "*I* am tall and strong".

Putting aside this additional bodily reference as not for the moment concerning us, the mental "I" as conceived by the man in the street shows several very remarkable characteristics.

The first of these has just been mentioned. It is that of being substantive; that is to say, analogous to the "substances" deemed to constitute the material world.

As second momentous characteristic of the "I" may be cited its persistence. And this holds good of the experiencer in spite of all change in what is experienced.

Whether perceiving this or thinking that, whether in want or in satiety, whether undergoing pleasant sensations or unpleasant ones, the " I " is throughout taken by common sense to remain identically the same. Sometimes indeed statements seem to suggest otherwise. A person will remark : I feel different today from yesterday. But in truth, even here, the difference indicated would seem to be in what is felt, not in who is feeling.

In the third place comes the characteristic of being perfectly simple, and in that sense unitary. In it there appear to be no separable or even distinguishable constituents. In attempting to illuminate this situation of multitudinous composite states appertaining to a single simple " I ", comparison has sometimes been made to the innumerable radii of a circle which issue from one and the same central point.

Finally the " I " is believed by the ordinary man to be known by him in conscious experience. When he says " I feel this ", or " I remember that ", the I is not supposed to be anything inferred or imagined, but rather to be known in a perfectly direct way. According to the popular expression, it is " felt ".

On the whole (with the exception of the ever recurring confusion between mind and body) the " I ", " Me ", " Self ", and so forth of common sense—unlike the wild confusion which seemed to meet us in scientific psychology—appear at least to be serviceable concepts. Their chief characteristics are substantiality, persistence, simplicity, and consciousness. And these, true or not true to fact, are at least sufficiently definite and consistent to supply a preliminary basis of consideration.

§ 3. *Many Concurring Psychologists*

After this beginning in common sense, how did the concept of " I " fare with the expert psychologists ? We

will begin with the many who have attempted to carry on this concept without any fundamental change.

Here may perhaps be placed Plato, as instanced by the following well-known passage:

> "I cannot persuade Crito, my friends, that I am that Socrates who is now conversing with you, and who methodises each part of the discourse; but he thinks that I am he whom he will shortly behold dead, and asks how he should bury me."

Possibly, too, the Stoics meant something of this sort when they called the "I" the "leader" (*ἡγεμονικόν*). Far more important, however, seems to have been the stand taken on this topic by Augustine.

But the climax was not reached until this teaching of the Latin father was in the Renaissance appropriated and developed by Descartes, who arrived at the following famous assertion:

> "I am a thing that thinks; that is to say, who doubts, who affirms . . . who loves, who hates . . . and who feels."

Furthermore he designates the "thing" (*chose, res*) more specifically as a "substance", which he defines as "a thing that can exist of itself" (*une chose qui de soi est capable d'exister*).

Here is a view with which the plain man—so far as he can understand it—is tolerably satisfied. Bothered he may be with this precise definition of "substance". But, as we have seen, the I is really taken to be something substantive even by himself.

Such a doctrine—with if possible even closer approximation to common sense—has continued to be strongly upheld to this day. By Hamilton, for instance, all the four characteristics, those of substantiality, of persistence, of simplicity, and of consciousness, are advocated with the most perfect explicitness. Other prominent names are

those of Jouffroy, Porter, Maher, Calkins, Angell, Oesterreich, Fröbes, and above all Aveling with his school, including Thomas and A. C. Garnett. Here is an extract from Porter:

> "Not only are we conscious of the varying states and conditions, but we know them to be *our own states*; i.e. each individual observer knows his changing individual states to belong to his individual self, or to himself, the individual. The states we know as varying and transitory. The self we know as unchanged and permanent. It is of the very nature and essence of a psychical state to be the act or experience of an individual *ego*."

And similar views would appear to have reigned in the East. Thus the Vedanta declares the Self to be unextended and to undergo neither addition nor subtraction.

§ 4. *Trouble about Substantiality*

But by others, even more numerous, all four characteristics have been utterly repudiated. First to bear the shock was the alleged feature of substantiality. This seemed at first to suffer a rude attack from Locke, when he wrote:

> "Not imagining how these simple ideas (conveyed by the senses) can subsist by themselves, we accustom ourselves to suppose some substratum, which therefore we call substance."

For so saying, however, he was severely taken to task by the Bishop of Worcester. And thereupon he makes a remarkable change of front. He now urges that really his principles, far from arguing against "a *spiritual* substance in us", actually prove its existence. Still he prefers to call it, not a "Self", but a "Soul".

In the same year as Locke, however, there had been born a man of extremely different temperament: one

that would hear of no compromise or accommodation. Throughout, with Spinoza, principles are laid down dogmatically and carried through ruthlessly. So far as the *idea* of substantiality is concerned, indeed, he does not seem to depart widely from Descartes. He writes:

> "By *substance*, I mean that which is in itself, and is conceived through itself."

But from this much debated definition he goes on to infer that there cannot possibly be any substance of this kind other than "God".

Passing on to modern times, we find many writers deeming the notion of mental substance no longer worthy of disproof at all, but only of ridicule. C. Read says:

> "Surely, consciousness would never have been supposed to imply a distinct substance from the body, had not the belief in ghosts arisen from other causes."

§ 5. *Trouble about Persistence*

The next characteristic which we have seen attributed to the "I" is that of persistence. And herewith we are at once plunged into the tremendous question of human immortality. Again Locke might seem to take up a very negative attitude. He writes:

> ". . . the identity of the same man consists in nothing but a participation of the same continued life, by constantly fleeting particles of matter. . . . He that shall place the identity of man in any thing else . . . will find it hard to make an embryo, one of years, mad and sober, the same man, by any supposition that will not make it possible for Seth, Ishmael, Socrates, Pilate, St. Austin, and Caesar Borgia, to be the same man."

But once more he escapes from the most menacing conclusions. His words, he protests, only deny the persisting identity of the "man", not of his "soul".

No such evasions, however, were attempted by Hume. The whole idea of a permanent Self, he declares to be a "fiction":

> "Setting aside some metaphysicians," he says ironically, "I may venture to affirm of the rest of mankind, that . . . the mind is a kind of theatre, where several perceptions successively make their appearance, pass, re-pass, glide away, and mingle in an infinite variety of postures and situations. There is properly no *simplicity* in it at one time, nor *identity* in different."

Hume's view was largely followed by the Associationists. But some of them were a little inclined to baulk at it. James Mill, for instance, was not quite happy in

> "the paradox that something which *ex hypothesi* is but a series of feelings *is aware of itself as a series*."

Nevertheless, with touching optimism, he pleads that

> "by far the wisest thing we can do is to accept the fact."

More resourcefulness is displayed by James. This author definitely repudiates the Associationism in which all personal identity is formed:

> "by successive thoughts and feelings in some inscrutable way 'integrating' or gumming themselves together on their own account."

For his part he indulges in the following flight of imagination:

> "Each pulse of cognitive consciousness, each thought, dies away and is replaced by another. The other, among the things it knows, knows its own predecessor, and finding it 'warm,' in the way we have described, greets it, saying: 'Thou art *mine*, and part of the same self with me.'"
>
> ". . . It is impossible to discover any *veritable* features in personal identity, which this sketch does not contain."

§ 6. *Trouble about Simplicity*

The next great feature attributed to the " I " by the man in the street, but discarded by very numerous psychologists, is that of simplicity in the sense that a point is simple.

By Hume, as we saw, this feature was rejected alongside of persistence, and no less emphatically.

For Herbart, not very long afterwards, the " true Self " was not simple but an intimately fused mental complex. Still the " Soul," he strongly maintained, was

> " A simple being, not only without parts, but also without any qualitative multiplicity."

No such reservation was made half a century later by Mach :

> " Not the *Ego* is primary but the elements (sensations). The elements build up the ego."

So, too, very soon afterwards, Höffding :

> " In vain," he says, " the ego has been looked for as something absolutely simple. . . . The nature of the ego is manifested in the *combination* of the sensations, ideas, and feelings."

With still greater confidence said Bradley a few years afterwards :

> " Your soul or ego is a mass of confusion, and we have long ago disposed of it."

In the same direction lies the impressive verdict of Husserl :

> " It is self-evident that the I is nothing peculiar (*eigenartig*), that hovers over the manifold experiences, but is simply identical with their own complexive unity (*Verknüpfungseinheit*)."
>
> " There is no pure I as a centre of reference (*Beziehungs-Centrum*)."

Nor are things found to be otherwise when we turn to such a radically different psychologist as Titchener :

> " The word 'self,' as a psychological rubric, means the particular combination of talent, temperament, and character—of intellectual, emotive, and active mental constitution—that makes up an individual mind."

Along another line of proposed psychological doctrine, the " I " is not attained by a number of different states " conspiring together ", but by some special kind of them (mental or bodily) being alone accepted. Here is a sample of Th. Lipps, where the choice of kind happens to fall on the " feelings " :

> " The precise core of the ' I ' consists in the feelings of pleasure and unpleasure of striving and counterstriving."

Livelier, as usual, is the version of James, according to whom :

> " The Self of Selves . . . when carefully examined is found to consist mainly of these peculiar motions in the head or between the head and throat."

§ 7. *Trouble about Consciousness*

There remains one more common-sense characteristic of the " I " to be a butt for criticism. It is that of consciousness, in the sense of the I being—at least to some extent—directly known in experience. This has often been denied even by those psychologists who have accorded to the other three characteristics a cordial welcome.

Here we may put Berkeley himself. The I, or " that which acts ", he identifies with the " spirit ". And this, he claims indeed,

> " is one simple, undivided, active being." But nevertheless, " it cannot be of itself perceived, but only by the effects which it produces."

§ 8. Two *Selves*

Let us conclude this list of psychological doctrines transcending common sense by recording one which—usually in conjunction with one or other of those preceding—would seem to have gained the widest currency of all. It is that which, failing to get along satisfactorily with any single version whatever of the "I", has taken refuge in conceiving the existence of *two* of them!

Of these the one has been called by a variety of names, such as "real", "pure", "absolute", and "transcendent". In most cases, it closely resembles certain concepts of the "soul" or the "spirit". Also it is akin to the "I" of common sense, save that, unlike the latter, it is generally not taken to be in consciousness. It therefore includes the case of Berkeley just mentioned. It also agrees well enough with that of Locke *after* reconsideration at the instance of the good Bishop of Worcester. As further advocates of this view might be reckoned both Spinoza and Leibniz. But it reached its philosophical pinnacle with Kant. He writes:

> "This much is certain: that I always through the 'I' think to myself of an absolute but logical unit of the Subject."

Typical nowadays of the absolute ego is the following passage from Jodl:

> "The 'I' is the general basis of all consciousness. . . . A state in which 'I' does not occur . . . can never be a conscious state. This elementary 'I' is not analysable."

The other I, supplementary to the preceding one, does not possess so many titles. Usually it has had to be content with that of "empirical". But against this unity of name may be set a diversity of meanings. The "designation" of "empirical I" has been understood

in many different ways, of which, however, three seem to have been most common.

In the first of these, the empirical Self is its appearance as opposed to its real nature. Such a notion was already favoured by Locke's great opponent, Leibniz. But half a century later it was terrifically developed by Kant. The latter writes:

> "We only see ourselves in the way that we are inwardly affected by ourselves. . . . We know our own Subject only as appearance, not in accordance with what it is in itself."

Briefly, the apparent nature of oneself is now declared to be determined, not by the real facts, but by some *a priori* necessity; as it were, some congenital infatuation.

However, there is perhaps ground for comfort. After all, this devastating criticism was launched by Kant not only against knowledge of the Subject "I", but against knowledge of anything whatever. So the psychologist would appear to be at any rate failing in good company.

However, this drastic representation of the empirical Self has been greatly attenuated by Kant's very numerous successors. Ward, for instance, only writes as follows:

> "Ego has two senses, distinguished by Kant as pure and empirical, the latter of which was, of course, an object, the *Me* known, while the former was subject always, the *I* knowing."

But what can he really mean by thus setting up the "Me" against the "I"? These two seem to differ solely in respect of grammatical case. Every schoolboy can run through "I, me, of me, to me, by me". All refer to precisely *the same thing*.

The second common version of what is meant by the empirical "I" is much broader. It is not the point-like

I or me alone, but this *plus all its carried states or other attributes*. It is, in fact, simply the whole concrete person. But why not avoid ambiguity by using this good word "person", as Locke did? The introduction of the word "empiric" seems only to bring in equivocation and dispute.

There remains the third version of the "empirical" Self. It has been devised by James. According to him:

> "In its widest possible sense, a man's Self is the sum total of all that he can call his, not only his body and his psychic powers, but his clothes and his house, his wife and children, his ancestors and friends, his reputation and works, his lands and horses, his yacht and bank-account."

Has any passage even of his won more applause? Can anything be ranker journalese? What man in his senses—even a psychologist—would really ever call himself a bank-account?

§ 9. *Scientific Progress*

Such being in outline the principal doctrines that throughout the ages have been advocated concerning the nature of the "I", the time seems to have come when we should stop to ask ourselves, what after all has been the progress achieved?

On the credit side of the ledger must be said that numerous views have been entertained by which, no doubt, the bounds of the original common sense are far exceeded. But on the other side of the balance lies the fact that, until quite recently at any rate, none of these views has even approached to gaining any consensus of opinion. What is almost worse, not one has been definitely rejected. Age has not withered nor custom staled their diversity.

Another line of progress might seem more hopeful. It might be thought that though the different rival views

continue to remain fundamentally much the same as ever, yet in course of time they have been developed in greater clarity. But this can scarcely be urged by anyone with first-hand knowledge of the historical facts.

Much more promising as a direction of progress is the amassing of evidence. In science it often happens that even where controversies appear to make no headway towards a decision, there is nevertheless all the time being accumulated more and more information, which will bring about the decision eventually. But even from this aspect the controversy about the ego has in many ways been disappointing. Take for example the evidence supplied by pathology. It certainly is abundant enough. In mental hospitals nothing is commoner than decrease of self-control and increase of self-conceit. But still the difference of these patients from normal people seems to be only one of degree, not of principle. So that here after all, little is gained for theory.

More hopeful in this respect might seem to be the startling cases of changing " personality ", as quoted in the previous chapter. Nevertheless all this, again, seems to be only an extreme case of what to a less degree occurs abundantly in normal life, and can even be experimentally elicited by a dose of alcohol. So far, there is not the least ground to infer any genuine change of the " I "; but only exaggerated alterations of its states.

As much can be said for disorders of memory, even the most extreme. It is not very rare, for instance, for a man or woman to become suddenly oblivious of all his previous experiences of any kind ; not to know where or who he has been or is. He starts a complete new set of experiences. Perhaps in turn this new set may be similarly forgotten. And then, most likely, the original set will come back to him again. Something of this sort occurred in the Beauchamp case. Instances were notoriously frequent during and after the War. Inter-

esting as are such dissociations, however, they seem to have but little bearing on the nature of the ego.

Much more suggestive are the apparent manifestations of what has been called co-consciousness. This also was reported by Janet and Morton Prince (see our preceding chapter). And something of the kind seems to happen in the so-called "automatic writing". In such cases there appear—at first sight anyway—to be two (or more) consciousnesses going on *simultaneously*. And the inference is natural that here are two different series of experiences, each underlain by its own separate ego. But on further consideration, this inference would appear not to be compulsory. In the first place, the seeming simultaneousness may really be only rapid alternation. This view was considered plausible by Morton Prince himself. And even conceding genuine simultaneity, a little reflection shows that the co-consciousness still admits of complete explanation in terms of the two interacting experiences. There is still no imperative need to suppose any duplication of the experienc*er*.

In addition to any such evidence derived from abnormal occurrences, further light might be expected from study of the mental development of the selves of children. But on this point the investigations seem to have excelled more in quantity than quality. The story they tell—unlike the child study of most other matters—may be charged with containing but one half-pennyworth of observation to an intolerable deal of imagination.

But now we arrive finally at a sphere in which the accumulation of good evidence can hardly be gainsaid. The great service rendered by most modern psychological science has consisted in putting introspection upon an *experimental* basis. Few if any experiments, indeed, seem to have been arranged for the express purpose of

studying the " I ". But fortunately some of them, although devised to examine other matters—notably, acts of " will "—have afforded as a by-product much information on the " I " also.

This method of research had to encounter great difficulties. Still, several investigators succeeded in gaining results of first-class importance. Notably Ach, Dürr, Michotte and Prüm, Katzaroff, Boyd Barrett, as also especially Aveling with his pupils H. Wells, R. McCarthy, and others.

The main outcome of all these experiments for our present purpose has been to show that sometimes, though but fleetingly, the subject does observe in his conscious experience the presence of an active substantive self. More often, such observation appears to be masked by that of other things, such as " bodily strains, imageless thought, and the like ". But conversely, when the other processes tend to disappear the Self becomes momentarily prominent. This Self as given in immediate awareness is described as being

> " a bare entity acting in some way."

It is said to be

> " experienced in the most simple form."

Furthermore it is from moment to moment

> " persistent," " always the same Self."

Altogether, the description of it would appear to agree extraordinarily well with that of the " I " of the plain common sense and its adherents.

From this Self immediately given and corresponding to the original " I ", Aveling sharply distinguishes that which he calls the " concept of self " and which we here have called that of the whole " person " or " individual " (see p. 389). It comprehends not only the I itself, but also its attributes. He says of it :

> "On dissection, it is found to be made up of a large number of notions as to how the Self *can* act, since it has so acted, or how it might act."

Finally, both the one and the other are distinguished by Aveling from the Self as a sensory percept. By this last he means the percept of one's own body.

§ 10. *Upshot*

On the whole, the present topic of "I" and "Me" has shared the fate of several others. Once more, scientific psychology began by embarking on various gallant adventures far beyond the bounds of common sense. And once more, none of their enterprises made good. Not one attained to a general acceptance. None even attained to the negative success of being finally rejected. Instead, the psychology remained in what seemed to be endless and hopeless turmoil.

But then came a break in the clouds. The introspection of the Self was rendered amenable to experiment. And among those who have availed themselves of this method there has been, if not perfect accordance, at least a fair measure of this. The general result has been—back to common sense again!

CHAPTER XXIII

MENTAL UNITY

§ 1. The Cult. § 2. Multiplicity of Conceptions. § 3 Unity versus Division. § 4 "One" for Utility. § 5. "One" by Caprice. § 6. "One" from Necessity. § 7. "One" on Other Grounds § 8. Displacement of Words. § 9. Upshot.

§ 1. *The Cult*

In several earlier chapters (III, XV, XVI, and XXII) our consideration of mental structure has already brought us upon the topic of "unity". In particular, we have found it constitute one of the very first problems of the ancient philosophers, notably Xenophanes, Parmenides, Plato, Aristotle, Plotinus, and Augustine. And down to the present day, this unity has constituted a large part of the foundations upon which the philosophical world views have raised their most impressive edifices.

But over and above this doctrine of a unity embracing all things, there have been countless assertions of a unity that specially characterizes the mind. Take for example the pronouncement of Busse:

> "The unity of consciousness . . . represents a formal and general characteristic of all consciousness. . . . And for this fundamental characteristic of psychic life there is no physical analogue."

Or Stout:

> "The unity of consciousness is radically different in its nature from any unity which can belong to a material thing."

And such passages might be multiplied without end.

From this alleged mental unity have been and are being drawn far-reaching deductions. For example, it is held to explain why we cannot think of more than one thing at a time. It is taken to say the most decisive word against the erring " faculties " (see above, p. 189). It is regarded as one of the many supports for the hypothesis of a " mental energy ". It is even accepted as the strongest evidence that the human soul is immortal. If such phenomena as " double personalities ", " automatic writing ", and other disaggregations of consciousness arouse everywhere the deepest interest, this is because of their seeming conflict with this doctrine of unity. Consciousness has in fact been raised to a place among the galaxy of great unities which—sought, found, or postulated—have been the cult of all ages: Unity of the Universe, of the Ultimate Elements, of the Logical Principle, of the Absolute Ideal, of the First Cause.

§ 2. *Multiplicity of Conceptions*

To approach such high matters in the spirit of critical inquiry seems almost presumptuous. But even here science must needs ask, however diffidently, what sort of thing is really at issue. It must petition for definitions, or at any rate for instances. To what mental entities, attributes, situations and so forth, is then this term " unity " to be applied ?

Some answers to this question have been as follows. Baldwin deems that the unity of consciousness can somehow be reduced to

> " The relating activity of attention."

But T. H. Green finds it in

> " The combining agency of our intelligence."

Hartmann for his part traces it to acts of "comparison." For Clifford it is

> "The power of establishing a certain connection."

Akin seem to be the positions adopted by Schuppe, Ardigo, and Ward.

Widely different is the following indication given by Ebbinghaus:

> "I look out of my window and perceive in the blue sky, besides some cirrus-fibres, a beautiful cumulus cloud. Even with a hasty glance I see many details in it. Dazzling brightness on the one side, silver grey shadows on the other, a simple horizontal basis below, and a richly articulated high-towering ball above, together with a profusion of smaller balls and shadings in its interior. But whilst I see all this, and more or less clearly distinguish it, I nevertheless have a kind of impression quite different from that produced, for example, by the various articles of furniture in my room, or by the books that lie about on them. The latter give me a bare sum, a bare multitude of things alongside of one another. From the aspect of the cloud, on the contrary—in spite of the multiplicity, which I do indeed perceive—I get the consciousness of a *Unity* which includes the *Many*, of a *Whole* whose parts constitute the many details."

Further versions of what mental unity is taken to be are still more diverse and surprising. Here are a few samples:

> "The body with a relatively fixed mass of organic sensation" (Sully).
>
> "The backward look which we cast over life" (Lotze).
>
> "A fixed dominant circle of sensations, ideas, and feelings" (Höffding).
>
> "Aggregation of uniform processes, called 'shocks'" (Spencer).

There are, then, many Richmonds in the field. Which of them is *the* unity of consciousness so much

insisted upon? Or do they possess this distinction jointly? Or are they all, perhaps, in spite of the outward diversity, at bottom one and the same thing? Although professedly of vital importance, the matter is being strangely little scrutinized.

Some such misgivings may occasionally be encountered in literature. Thus, Lotze:

> "Many misconceptions have gathered round the simple name under which we have spoken of this ('unity of consciousness') and obliged us to point out more explicitly what we mean by it."

The great majority, however, would appear to regard even any inquiry as superfluous. They share the optimism of Locke, who so lightly dismissed the whole matter, saying:

> "Among all the ideas we have, there is none more simple than that of unity."

§ 3. *Unity versus Division*

However, in view of the multiplicity—if not medley—of definitions of the unity of the mind, there is something to be said for the policy of approaching the topic with some cautiousness. Accordingly, we may perhaps with advantage, before entering further into the case of mind in particular, consider a while the nature of unity in general.

And for this purpose we can scarcely do better than hark back to the treatment of the topic in ancient times. The method used by Aristotle (see pp. 67 ff.) was to assemble an array of cases to which the term "one" was customarily applied. By consideration of these cases, he arrived at the conclusion that their common and essential characteristic was that of "not involving division". In agreement with this view, the larger half of subsequent

authorities took the nature of unity to be essentially privative; a thing has this character, they said, when it is *not divided within itself, but is divided from everything else.* Such was the decision of Cajetanus, Capreolus, Durandus, Gabriel, Henry of Ghent, Jandunus, Soncin, Fonseca, and Aegidius. Above all, it was the doctrine of Aquinas.

Avicenna and the minority of Schoolmen—as Duns Scotus, Alexander Haliensis, Soto, and Burgerdicius, who opposed the foregoing privative view of unity—nevertheless arrived at a conclusion closely akin to it. They still defined unity in exactly the same words as did their adversaries; and they admitted that its negative aspect is at any rate the sole avenue to its effective study.

Thus these early thinkers almost unanimously attempted to escape from the confusion attending the idea of "unity" by resolving this into undividedness. Unfortunately, however, the substitution would seem only to escape from Scylla by wrecking on Charybdis. Among other objections is that, as the ancients soon found out themselves, the idea of "dividing" embraces as wide and perplexing a variety of cases as does the "unity" itself.

Originally applied to such physical actions as chopping up wood or sharing food, its usage has long been extended to an immense diversity of other situations presenting but weak analogies to the original ones.

§ 4. *"One" for Utility*

Where in all this entanglement does the plain man come in? The term unity, indeed, is for him what he calls highbrow. He reserves it for great political or religious occasions, where clearness of thinking cedes to warmth of feeling. But there still remains for us a way of approach to his views. From the dictionary we learn that unity consists in "the fact, quality or condition of

being one". Unless, then, we could cut ourselves adrift from the dictionary and start a new language of our own, we have only to consider when and how the term " one " is customarily employed. And in so doing we come back at long last to the procedure of Aristotle himself.

For our argument, we must here chiefly rely on black and white visual surfaces. To some extent the advantages and disadvantages of such examples have already been discussed (Chapter XIII); the main advantage there

Fig. 1. 

Fig. 5.

Fig. 2. 

Fig. 6.

Fig. 3. 

Fig. 4. 

Fig. 7.

noted was the possibility of illustration on the pages of a book. A further advantage, however, is that such comparatively simple spatial cases can—with a little imagination—be made to stand for those from which the concept of unity would appear to have originally emerged.

Furthermore, such illustrations are substantially the same as those which have been adduced in the highly controversial literature which we are going to consider subsequently (Chapter XXIV).

Finally, we shall in this way be brought back to the case which we have already discussed at some length in Chapter XV; the case of arrays of squares and circles being grouped together in fours or otherwise. For to group together and to regard as " one " would seem to

be just the same thing. We will this time employ the preceding set of figures in which the invitation to say "one" or "two" is present in varying degrees (see p. 409).

As in the case of the grouping in Chapter XV, so here too, let us search for the grounds upon which the seeing as one or as two depends. Now the most facile reply would be that a figure is seen as two objects when it is divided. But as we have already seen, to explain unity in terms of "division" does not afford much real advance. For the latter word is nearly if not quite as problematical as the former (see above, p. 408). Indeed, for a great many authorities "unity" and "undividedness" are almost synonymous terms (Chapter III). To get genuine elucidation, we must go behind the word "division" and see what it here really stands for.

Again, one might be tempted by certain tendencies of modern literature to suppose that the splitting of the figure into two was caused by intervening contours. But this notion is put out of court by Fig. 4, which is vividly dual, although it has no contours at all.

Nor again is the duality due to the distance of the squares from each other. For it persists unimpaired when the distance is reduced to a minimum as in Fig. 3.

Remembering the previous case of Chapter XV, we are inclined to wonder what part in the phenomenon of unity may be played by similarity. Such role is at any rate not universal. Fig. 2 has a peculiarly vivid appearance of being composed of two things, in spite of these being extremely dissimilar.

But on the other hand the duality does seem to be diminished by resemblance of some kind. It becomes less and less, for instance, as we pass from Fig. 5 to Fig. 6 and thence to Fig. 7. This progressive change seems traceable to systems of resemblance that are likely to characterize collective functioning. But with such a conclusion we are back once more at the circles of

Chapter XV. For these also were grouped so as to favour collective function, in the sense that those items are taken together which would often go together. After this fashion, our present figures, just as much as the circles before, appear to be governed by considerations of usefulness; the unity and the duality appear to be introduced just where they are likely to be serviceable. The most vivid case of duality seems to be displayed by Fig. 1; and here it is that the objects depicted are most likely to require separate mental treatment.

But turn to the other extreme, that of most conspicuous unity, our Fig. 7. Suppose it to represent a piece of wood. Its likeness within itself and also its unlikeness to everything else indicate that the whole of it has had, and is likely to have again, more or less common treatment. Together it may all be picked up, stored, burnt, and so on. To regard it as two things would involve two mental operations where one would suffice; this would be uneconomical. But turn to Fig. 2 or Fig. 3. Here the treatment of the two portions is more likely to be separate. They may be picked up separately; one may serve as fuel, whilst the other is fashioned into a weapon, and so on. Each requires a separate mental treatment. Any attempt to work with one only is heading for disaster.

So much for the oneness and twoness of visual objects extended in space. But closely analogous are auditory objects extended in time. For instance, if a horn is blown for a short time, then silent, and then blown again, the ordinary hearer will speak of two blasts; and this may happen whether or not the tone changes and whether the interval be long or short.

Something of the same sort may occur even without involving either space or time, but only qualitative resemblance. This, in fact, seems to be the case with all

general ideas. When the plain man says that oxygen is one thing and hydrogen another, he is in each case bringing together what he thinks is alike and dividing it off from what he takes to be unlike. And here, no less than in the preceding case, the principle of utility is influential; multitudinous things are put together and distinguished from other things for the good reason that they can usefully be considered as a class in distinction from other classes. Proverbial, for instance, is the need to discriminate between sheep and goats.

§ 5. *"One" by Caprice*

But this is by no means the end of the business. Potent as may be the principle of mental utility based on systematic resemblances, or possibly other features, it is certainly not the sole ground for the presentation of an object as "one". We have already seen in Chapter XV that grouping can occur in cases where neither resemblance nor utility played any part. Instead the ground appeared to be nothing more than caprice or arbitrariness. This was the dominant influence in the case of the circles given there. Moreover, the two kinds of grouping—by utility or by caprice—were found to have essentially the same result; the two appearances resemble one another even to the extent that both may be sensorially vivid.

Quite as much can be said of the present figures on p. 409. We can *if we try* introduce unity even into Fig. 1; we can take even the square and the circle as jointly constituting one single pair of figures. We can even do so with some degree of vividness. Conversely we can, if we will, break up the unity even of 7; we can look at it as consisting of two squares contiguous to one another. The unity can everywhere at will either be brought in or else kept out. The decisive word lies not with the

resemblance, but with the intention.

And although almost all our examples so far have been drawn from the sphere of sensory perception, the same thing holds good, and is even intensified, in the domain of thought. Any amount of any sort of things can be put together and called "one". Instances are one heap of stones, one hundred years, one multitude of beings. Conversely, any distinguishable items, however much cohering together in fact, can still be divided mentally. We can say that convexity and concavity are "two" aspects of a curve. But whether we speak of one, or of two, or of many, that of which we speak remains unaffected. One metre and ten centimetres denote exactly the same thing. Once more we encounter the fact that the unity—as so far considered by us, at any rate—is not objective but subjective; it is nothing in the matter presented, but only in the manner of presentation.

§ 6. *"One" from Necessity*

Still in addition to the preceding cases, there is yet a third ground why an object carries the title of "one". Indeed, we have so far left out of account that very case where unity seems to arrive at its extreme manifestation. An instance of this case is afforded by a single point (for an approximate example, the reader may look at any full stop). A purer example, perhaps, would be an atom, in the conception of Boscovich as a dimensionless centre of force.

How, then, does this third case of being "one" compare with the two previous cases? Obviously the reason for the point being regarded as one thing rather than several is necessity; being perfectly simple, it does not possess the wherewithal to be divided.

On the whole, then, we have met three different grounds for unity, as follows: utility, caprice, and

necessity. In the cases of utility and caprice, the unity as such would appear to be exactly the same. In the case of necessity, it appears to be at least very closely akin. In all three cases alike, it is only a manner of presentation, not matter presented.

§ 7. *"One" on Other Grounds*

Let us now proceed to examine another case that seems to be specially interesting, namely, that of form. Many writers—including, it seems, Aristotle himself—have attached extreme importance to the unity of a shape or form (taking this word in its ordinary meaning of system of relations, p. 71 above). They infer its unity from the fact of its being, they say, indivisible; on division being attempted, the form is destroyed. As a typical instance let us take a triangle. Divide it into three lines —so the argument runs—and it is a triangle no longer. If this view were to be accepted, then form would have to be put along with simplicity, as another instance of unity grounded on necessity.

But here comes in again the equivocality of the word "divide". Suppose, on the one hand, that the kind of division intended is physical (or otherwise real), then the division into three lines involves pulling these apart. And now indeed the triangle as such does vanish; merely for the trivial reason that the very word "triangle" means the lines put together.

But suppose, on the other hand, that the kind of division intended is only mental; then it does not in the least require the lines to be pulled apart. On the contrary the triangle can quite well be thought of as *three*-lines-put-together. And this can be done without any objective change in it. To think of it as *one* is not necessary, but only useful. Hence, in considering forms, we once more encounter the fact that unity and multi-

plicity are nothing more than manners of presentation. They no doubt rest or are grounded on matters of fact. And what precise relation they bear to the grounds on which they rest is indeed a problem for investigation. But certainly, at any rate, they do not consist of, or even necessarily resemble, their grounds; any more than butter consists of, or resembles bread.

Let us turn from spatial to musical form. In the following example, all eight notes will usually be grouped together as one passage. But even the plain man is quite able to regard the first three notes as one phrase, the last five as another.



Here again, the ground for the grouping appears to be analogous. Certain likenesses and unlikenesses of pitch and time supply a ground for certain aesthetically effective groupings.

Another case involving unity and duality has been the origin of some of the most famous problems of ancient times. Aristotle had cut into two or more pieces several plants and insects, but had found no corresponding division of their functions to ensue. Instead, each severed half acted like a complete organism. Since thus each portion required separate treatment, each was advantageously regarded as one separate thing.

Another case of exceptional interest besides the unity of forms is that which is attributed to enduring substances. Suppose, for instance, that anybody sees a house again and again and believes it—rightly or wrongly—to be always the same. To this objective ground, sameness, he adds nothing else objective, by calling the house "one". How shrewdly these two

things, sameness and oneness, are distinguished, even by the plain man! Does he not frequently speak of the house as being "one *and* the same"? But better still, perhaps, he might call it "the same and one".

But what is the relation, it may be asked, between this sameness or identity which we are now considering as the ground of unity and the likeness or resemblance of which we spoke before? This relation, as is familiar enough to philosophers, has been and still is the occasion of famous controversy. By some, identity is taken to be nothing more than perfect resemblance; but by others (including the present writer) it is held to be fundamentally disparate. Among the champions of the latter view we find—rather unexpectedly—J. S. Mill. For our present purpose, however, we are spared the need of discussion. On either the ground of sameness or that of resemblance, the presentation of an object as "one" would appear to offer the greatest general utility.

§ 8. *Displacement of Words*

There is, however, a complication which we cannot altogether escape. We have, it is hoped, taken into consideration the chief primary and indubitable meanings of "one" and therefore of "unity". But the meaning originally attached to anything is apt to stray over to other things; and this in not very logical fashion. Such aberrations are glossed by grammarians as "figures of speech" and decorated with such titles as "metonymy", "synecdoche", and so forth. For instance, we say that the "kettle boils", making the word "kettle" stand for the water in it. In general, a word is transferred from its original meaning to anything else closely associated therewith.

Now in much the same way the word "one" or "unity", although primarily applied only to subjective

grouping, is often transferred to objective situations with which such grouping happens to become associated. Chief among such objective situations are, as we have seen, resemblance, identity, and co-operation. For this reason it is that we hear of a thing possessing "functional unity" when it all acts together (Chapter XI). Strictly speaking, the co-operation itself is an objective relation, but it naturally becomes associated with the subjective grouping also. On this account, similarly, dramatic critics speak of the "unities" of composition, when they mean that all parts of a play should belong to the same action, on the same day, and in the same place. The subjective "unity" obtains enthusiasm which properly belongs to the objective sameness.

§ 9. *Upshot*

After all, then, we seem to have arrived at a pricked bubble. In the primary sense of the word, "unity" is nothing more than a subjective manner of presenting an object to mind. It is a manner adopted for convenience, if the object is composite; by necessity, if the object is simple. Other usages of the word are merely transfers through figures of speech. The word is handled with perfect ease by the man in the street; or at any rate is so if it be replaced by its synonym "one". Thus, this unity—the adored of philosophers, the pet of psychologists—turns out to be nothing at all. That is to say, no fact, but only a way of viewing this. We have found good reason for the warning of Mach:

> "Lay not emphasis on the unity of consciousness."

Not unmerited would appear to be even the denunciation of Carveth Read, that

> "The boasted unity of consciousness is a mystical derivation from the Greek's amazement at Arithmetic."

But most of all we may agree with the broader and finer verdict of many ancient writers, expressed as follows by Suarez :

> " Unity adds nothing positive to entity, either in essence or in reality, either distinct from the entity by real nature or distinguished from it by reason."

CHAPTER XXIV

THE CONFUSION THAT IS GESTALT PSYCHOLOGY

§ 1. A Revolution. § 2. "Gestalt" as Form. § 3. "Gestalt" as Sensory Appearance. § 4 "Gestalt" as Underlying Force. § 5. "Gestalt" as Wholeness § 6. "Spoiling the Experience." § 7. Priority of Wholes in Time. § 8. Priority of Wholes in Function. § 9. Gestalt, Objective and Subjective. § 10. What Subjective Gestaltism has done. § 11. Upshot.

§ 1. *A Revolution*

Before closing our account of what is known or surmised about the constitution of the mind, at least a few words are required about the doctrine of "Gestalt". For this has evoked an exceptionally large literature, and a correspondingly widespread interest. Its proponents are usually designated as "Gestalt-psychologists", but this title we will here take the liberty of abbreviating into "Gestaltists". Many of these, especially the group at Berlin, have credited the doctrine with extreme novelty. One of its leading advocates writes as follows:

> "All the more important observations relating to the real units began to be made in the last thirty years, though the facts were before us thousands of years, wherever psychologists or other people looked into the world."

Another suggests that here at last we have a new and more promising approach to the greatest psychological problems; those of the essential nature of discrimination and of behaviour; the genesis of the "Self", and the connection between mind and body. There is a general

agreement that with this doctrine has come a revolutionary downfall of all "traditional" psychology.

Much more conservative, however, has been the attitude adopted by the other leading group of Gestaltists; that which has had its home at Leipzig. The founder and head of this movement has been Felix Krueger—successor to the chair of Wundt—who has gathered around him such notable lieutenants as Klemm, Volkelt, Sander, Kirschmann, and v. Dürckheim.

With these authors we do indeed again find great enthusiasm. Krueger himself, developing the theory of Gestalt in intimate connection with "wholeness", writes that

> "Wholeness is the highest principle of all evolution Locked together in Wholeness, referring to Wholeness, aiming at Wholeness, such is the character of both organic as well as psychical happening."

Still more striking is the following outburst of Sander:

> "When a long-sought and suspected connection suddenly flashes into mind in perfectly consistent formulation, when fragmentary items suddenly acquire meaning, or a tormenting chaos falls into visible order, then the emotive general condition of consciousness changes at one stroke. The confusions of feeling that accompanied the emergence of the Gestalt resolve themselves in a liberating sense of correctness and definitiveness, states in which the soul and its structural affairs have attained peace."

Nevertheless, far from claiming to have suddenly destroyed all the work that had ever been done previously, Krueger refers back with pride to Dilthey, Hegel, Tetens, Kant, Leibniz; above all, right back to Jakob Böhme.

On the other hand, this great movement has met with an opposition that is strong, persistent, and seemingly ever growing. Many psychologists who at first seemed to be rather stunned by this threat of upheaval are beginning now to murmur their incredulity. And

not a few have even ventured on protests as loud and energetic as has been its advocacy. Thus already in 1926 Bühler called the Gestaltists "theory-blind," and he ridiculed the Gestalt as a "maid-of-all-work". In 1937 Rignano complained that the term Gestalt had many diverse meanings hopelessly confused with one another. In 1930 Oeser wrote:

> "Psychology should be content with qualitative observation. . . . But in this book (of Koehler) qualitative observations are few."

Two years later we hear much more decidedly from Petermann that the explanatory factors proposed by the Gestaltists are unscientific:

> "Such concepts make all exactitude of thinking illusory, and throw open the doors to arbitrary interpretations. They cannot claim any explanatory value, in the genuine sense."

Still later, McDougall disposes of the theory with downright scorn:

> "I would submit that no one of the principles of Gestalt psychology is new, except one ("isomorphism") which is, I think, demonstrably false."

For strength of language, however, the record seems still to be held by the founder and for a long time president of the German Psychological Society, the eminent G. E. Müller, who wrote as follows:

> "This dissertation, which really does not accord with the academic post held by Koehler, with its misrepresentations, suppressions, and fabrications, its abortive hunting for circles (*Zirkelsucht*) and its, in part, downright silly (*läppisch*) or childish bombast (*Wortschwall*), can only be understood genetically if considered to be a product not of intellect but rather of emotion."

Truly the situation is critical enough. Have we been tempted to worship false gods? Or is Gestaltism the true

gospel after all, and its opponents mere cavillers? Anyway, the matter seems to merit careful consideration.

§ 2. "*Gestalt*" *as Form*

In common sense, at any rate, the first step towards answering such weighty questions about the doctrine is to inquire more closely what it really states. No doubt, it asserts that mental life is throughout dominated by Gestalten. But what, then, is the essential nature of these? Broadcasting to a popular audience, they have been described by Woodworth as follows:

> "This word Gestalt carries the meaning of shape, form, mould, pattern, configuration, organization, totality—something of that sort—and the main contention of the Gestalt school is that psychology ought to be studying the pattern and organization of thoughts and actions, taken as wholes, rather than trying to analyse them into so-called elements."

But this account is really too cheap. Aiming at simplicity, it has overshot its mark. Under the facile phrase "something of that sort" lies concealed all that is psychologically vital.

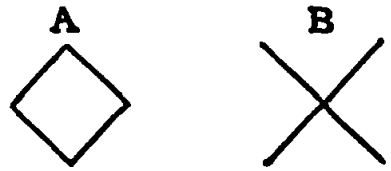
The honour of originating what is known as the earlier or Austrian school of the Gestalt doctrine is generally assigned to the work published in 1890 by Ehrenfels on "Gestalt-quality". His leading example is that of a melody. The consciousness of the n tones, he says, contains more than do n consciousnesses each hearing one tone.

Meticulously enough, he states the Gestalt-qualities to be:

> "Such positive presentational contents as are tied to the existence of presentational complexes, which for their part consist of elements separable from one another. The latter constitute the foundation (*Grundlage*)."

Other members of this School preferred rather different terms. Thus Meinong proposes to replace the Gestalt-quality and the Foundation by Funding and Funded (*Fundierung*, *Fundiert*). Stumpf proposes " Form " and " Material ". In any case, the hearing of the individual tones were regarded as receptive and sensory, whereas the appreciation of the whole melody was a productive and higher performance. Benussi called it a presentation of ultra-sensory origin (*Vorstellung aussersinnlicher Provenienz*).

Although the leading example of Ehrenfels comes from sound, he says that sight is the sense most prolific of such cases. The accompanying diagram would seem to be a typical instance of what he means. Here, A and B are made of the same " material " (four equal straight lines), but in A these are " formed " as a square; in B as a cross. And this conception of a Gestalt would seem to harmonize excellently with the literal meaning of the word (*gestellt* or placed), indicating how things are arranged in space.



However, Ehrenfels supplies many other examples of Gestalt-quality that seem to go much further afield. It may, he says, exist between different senses, as when cold combined with pressure gives the impression of wetness. It occurs in the case of feeling, as seen in the effect of a novel. Perception of it supplies the bulk of artistic appreciation. It constitutes most of the complex ideas with which we have to operate, such as benefaction, service, wages, beg, complain, steal, Peter, John, priest, Scot, state, authority. On the other hand, the Gestalt-qualities are said by him *not* to include relations, these being mental acts. Summarily, they are declared to comprehend " all constituent changes that can be apprehended unitarily ".

Now, in so far as the doctrine of Gestalt only consists in promoting the study of "form" as something over and above "material", it would seem to deserve only approbation.

Not so easily, however, can this doctrine be allowed the merit of originality. Ehrenfels is known to have been inspired by Meinong; the latter, by Brentano; he, by Aquinas; and he, again, by Aristotle. The last named even went so far as to originate the luminous comparison between different notes in one consciousness and in different consciousnesses. In fact, we are taken back to Chapter XIII.

If, however, the doctrine we have been considering was not indeed very original, it at any rate can claim to have been opportune. For during the nineteenth century, the study of form had been largely crowded out by the dominance of associationism. Form had indeed, as always, been cultivated along special lines: melodic form, by musicians; spatial form, by artists; literary form, by authors; and so forth. But by most psychologists it had been treated with deplorable neglect. The Austrian Gestaltism was, then, a powerful and timely rebound from Associationism.

§ 3. *"Gestalt" as Sensory Appearance*

Unfortunately, however, the doctrine of Gestalt is not to be disposed of so simply. Sensory perception, depicted as we have just seen, involves two distinct things; on the one hand, the material; on the other, the form. Of these two, the material was considered by the Austrian psychologists to be prior; if not in time, at any rate in logic.

But after a few years, this doubleness of the perceptual experience was rudely challenged. A small group of psychologists arose at Berlin to denounce it as imagin-

ary. In truth, they said, actual experience shows perception to contain not two but only one action. They declared that the form was perceived quite as immediately as that which is formed. The entire percept was for them just one single appearance. Koffka and the others wrote :

> " The forms are in no wise less immediate than their parts."

And this usage of the word Gestalt, no less than the preceding one, is well enough supported by the dictionary. The word, Grimm tells us, came long ago to broaden its significance ; it arrived at meaning more generally how a thing is made, its actual *state* as abstracted from and contrasted with its permanent essential character. And thence the word passed on to its present commonest rendering, which is the entire *perceptible exterior* of a thing as contrasted with the invisible rest of it. In this meaning, it no longer regards the form apart from the material, but includes both ; otherwise expressed, it is now not abstract but concrete. For instance, the Gestalt presented by a person comprehends not only his shape but also his colouring. Accordingly, a Gestalt is now defined in the dictionary as being " how a thing looks ".

But this reduction of the entire perceptual action to that of a single sensory appearance was taken to deny that it is built up from elementary constituents, such as distinct limited sensations. Koehler writes :

> " I look up to the homogeneous blue sky of today, and find it continuous. Not the slightest indication of its being composed of real units, nothing of limits or of any discontinuities."

But still, undeniably, a Gestalt could be highly organized, whereas the sensory stimulation was taken by the Gestaltist to be but little organized, if at all. At what point, then, does the organization set in ? The answer was found in physiology. The first and foremost

instance was supplied by Wertheimer to explain the appearance of motion in stroboscopes or cinema pictures. His very earliest publication stated :

> " If a point *a* is stimulated, and shortly afterwards the near point *b*, there would occur a kind of *physiological short circuit*."

Later on, great recourse was made to the migration of " ions " between solutions in " osmotic contact ".

But after this fashion the task of explaining sensory perception is dogmatically transferred from definite psychological research to extremely speculative physiological hypotheses. Such a transfer is, to say the least of it, disquieting.

There is, however, an even more serious feature in this conception of a Gestalt as nothing but a sensory appearance. Besides excluding all processes of lower order, it was taken to be no less distinct from those of higher order. Even Ehrenfels emphasizes that a musical Gestalt, as he understands the term, is wholly given in *Anschauung*, a word which is classically translated as sensorial intuition ; sometimes it is said to have " sensory freshness " ; sometimes to be " picture-like " ; or even to be " real ". It is called " the passive contemplation of an object ". With all this Ehrenfels contrasts the " *conceptual* " perception of melody, which is " thought-like ", being achieved by " a peculiar activity of comparison ", a " shift of the spiritual glance ".

The distinction seems akin to that which Herbart used to make between the binding together of the manifold as " an immediate result of the soul " and as the effect of a conscious synthesis. Anyway, this separation between the picture-like immediate perception and the thought-like activity of comparison seems to have been generally maintained by all Gestaltists. To this there was one exception, namely Koffka. He appears to have en-

countered a difficulty. For if the comparing was an act separate from the sensations compared, then these too must be separate entities; a conclusion that no Gestaltist could accept. But Koffka clave the knot in twain by saying that, after all, a comparison is *not* a separate act!

> "What psychologists have called the process of comparing . . . has been falsely singled out."

Anyway, it can confidently be said that, in general, Gestaltists have interested themselves solely for the passive picture-like perception, leaving the active thought-like kind out of further account.

But such a divorce would seem to be fatal. For the two kinds of process, picture-like and thought-like, supply exactly the same information. Ehrenfels himself conceded that this was so in the case of melody. And the fact can be at once corroborated (above, p. 423). This may be perceived to be square, either by a single passive intuition of the entire form, or else by several acts of comparison. We can either see it *as* a square, or else see *that* it is a square. The final information attained, that of the squareness, is just *the same in both cases*. The two experiences differ solely in the manner of regarding not in the matter regarded.

Moreover, in normal life the two ways of cognizing—without and with acts of comparison—are intimately blended and co-operative. Take any items in spatial tests of intelligence; for instance, in A, B, C, and D (Chapter XIII, pp. 231-4). Anyone doing these tests will find great difficulty in deciding how much of the work is effected the one way and how much the other.

§ 4. "*Gestalt*" *as Underlying Force*

We are not yet, however, at the end of the different versions of what is signified by the doctrine of Gestalt.

We now arrive at a strange transformation by which the nature of the doctrine becomes almost reversed. In the preceding section, we saw how the fact of restricting the concept of Gestalt to external appearance necessitated supplementing it by the supposition of underlying dynamic laws (electric, osmotic, and so forth). But very soon these laws determining mental structure, from thus being a mere supplement to the doctrine, came to be regarded as its very essence.

With a hint at such a view it was that Wertheimer took the field in his first and otherwise comparatively insignificant publication of 1912. And when he did produce his full-blown theory in 1923, this note becomes dominant. He goes so far as to write :

> " There exist connections where what occurs in the whole is not derived from the nature of the single pieces and of their putting-together. On the contrary—in the pregnant case—what occurs at part of this whole is determined by the inner laws of structure of this its whole.
>
> " I have stated to you a formula and could now end. For the Gestalt theory is just this ; neither more nor less."

Equally definite was the subsequent declaration of Koehler :

> " This, indeed, is the most general concept of *Gestalttheorie* : wherever a process dynamically distributes and regulates itself, determined by the actual situation in a whole field, this process is said to follow principles of *Gestalttheorie.*"

Simpler, but no less emphatic, is the very recent formal definition given of a Gestalt by Lewin :

> " Gestalt : A system whose parts are dynamically connected in such a way that a change of one part results in a change of all other parts."

But this dynamic doctrine, with its " inner laws of structure ", leads to further difficulty. Take first what

has been with all possible emphasis designated as "the universal law of Gestalt". It asserts that mental structures

> "become as perfect as the prevailing conditions permit."

But who shall say—the Gestaltists certainly do not—wherein "perfection" consists? To perfect anything means to complete it according to some prescribed ideal. This law conveys to us little or no information until we are told *what* ideal. Such statements, with sufficient twisting and far-fetched analogy, can indeed—like the responses of the ancient oracles—be more or less well adapted to anything already known. But they are far too indefinite for science, whose mission consists in predicting the future.

§ 5. "*Gestalt*" as *Wholeness*

But we are not even yet at the end of the transformations of this chameleon, "Gestalt". In fact, there have been several others. But here we will confine ourselves to one more only. It appears to be the most fundamental of all that have occurred. It would seem to have first arisen when the word fell into the hands of, and even became a favourite expression with, no less an author than Goethe. And his rendering it is that Gestaltists have everywhere—with not unnatural pride—acknowledged as the foundation of their doctrine. Actually, Goethe wrote as follows:

> "The German has for the complex existence of a real being the word *Gestalt*. In this expression he abstracts from the movable; he assumes that something belonging together has been determined, shut off, and fixed in its character."

In this description of a Gestalt, curiously enough, neither of the two previous meanings—those of form

and of sensory appearance—finds explicit mention. But they do still appear to shimmer through his actual writings. A new addition to the idea of a Gestalt, however, would seem to be the emphatic statement that it is something "fixed" which "belongs together" in itself but is "shut off" from its surroundings.

Koehler, acknowledging his lead, writes:

> "In *Gestalttheorie* the word Gestalt means any segregated whole."

Other proponents of the theory have been still more explicit. Sander, for instance, wrote that the very first criterion of a genuine Gestalt consists in separateness or segregation from the rest of consciousness (*Abgegrenztheit*, *Abgesondertheit*). That which is segregated is said to be "open" within itself but "closed" against everything else.

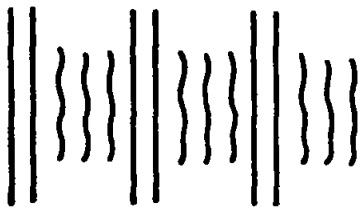
Indeed, much the same thing seems to have been meant even originally by Ehrenfels, when he laid down —as we saw—that the final and universal criterion of a Gestalt-quality is that its constituents should be apprehended in a "unitary" way. For unity itself, as set forth in the preceding chapter, has been defined to be that which is undivided in itself but divided from everything else.

§ 6. "*Spoiling the Experience*"

The concept of a Gestalt having thus been converted into that of a "Whole", let us see what attributes *this* was taken to possess.

Foremost came the principle that a whole is not susceptible of analysis, on pain of—as the Berlin Gestaltists say—"spoiling the experience". But the full rigour of this taboo has been mitigated by allowing the whole to be divided into "members" (*Glieder*), which

are designated as "sub-wholes" and regarded as "genuine" parts. Thus the entire accompanying figure is taken to be a whole; each doublet or triplet of similar lines is a "genuine" part; and each line a genuine part of a genuine part. But to analyse further each line into a top and a bottom part is, according to these authors, spurious (*unecht*). And worse still would be, it seems, to analyse a single line into extension and quality.



But this is a hard saying. In point of fact, every one of us does from morning to night make an infinite number of just such analyses. A Gestaltist, no less than any other man, will freely say that he sees a line to be black, or that the top half is like the bottom half. Without performing any such analysis, the world would be reduced to a company of morons.

Not a little gratitude, then, is due to the third great school of Gestaltists; that which arose in Leipzig under the inspiration of Krueger. His first published utterances on Gestalt appear to have been the fruit of his classical investigations into the nature of musical consonance and dissonance. But these were, in comparison with what was to come later, mere hints. Then followed twenty-three years of almost unbroken silence, but nevertheless—as was afterwards revealed—of almost continuous work. The unfavourable external circumstances, which precluded publication, could not arrest investigation. At length in 1926, the long gathering but so far still dammed up material broke forth torrentially in no less than six volumes (799 pages each) of his *Neue Psych. Studien*. And the quantity was well matched by the quality. On most points, the teachings of the Berlin school were judiciously moderated. And, in particular, emphatic recognition was accorded to the legitimacy of analysis.

However, one sort of analysis is banned by Gestaltists of all schools. It is that which is attributed to the "traditional" psychology, and is expressed by Koffka as follows:

> "All present or existential consciousness consists of a finite number of real separable elements, each element corresponding to a definite stimulus or to a special memory-residuum. . . . The sensation is a direct and definite function of the stimulus."

This attitude is epitomized by the ablest critic, Petermann, as follows:

> "The impugned point of view is one according to which perceptions are 'built-up' out of sensations. . . . And the remedy lies in an orientation, which no longer derives perceptions from sensations, but derives sensations from perceptions."

Accordingly, he says of Gestaltism that:

> "Its actual theme, its nuclear conception, is the *proclamation of the anti-synthetic standpoint of totality*."

And, indeed, he seems to regard this proclamation as the one scientific advance that Gestaltism has really achieved.

But all these doctrinal statements are sadly in need of elucidation. Which particular writings are here strangely credited with expressing "tradition"? What meaning is intended to be conveyed by those most tricky terms "real", "separable", and even "elements"? What is signified by a "direct and definite" function? Much seems to indicate that the writer really means "exclusive" function. But this interpretation seems to lead to absurdities. It would repudiate, for instance, all such influences as those of contrast, fatigue, and so forth.

More serious still is the uncertainty as to what is

meant by the "analysis" of a perception or other experience. As we saw (Chapter IV) some kinds of analysis are indeed fallacious, but others prove to be effective and even indispensable. Altogether, then, this Gestaltist objection to analysis seems too equivocal to be of really scientific service.

§ 7. *Priority of Wholes in Time*

A very different question, however, from that which asks what analyses are possible, is that which inquires when and where they should be introduced.

And here we encounter the fundamental Gestaltist doctrine, that *wholes are prior to parts*. The question can be, and in fact generally is, expressed in terms of priority in time. Of the two, the whole or the parts, which comes *first*? But even this question can be taken in several different ways requiring different answers.

The priority intended seems often to be that of study. Should psychological science begin with consciousness as a whole or with its elements? But this is a question of method which has been considered by us already (Chapter IV), and we found that neither the one nor the other of the proposed alternatives is really correct. Psychological study always begins with some middle-sized aggregate, such as a perception, a volition, or an emotion. Thence it works both downwards by analysis and upwards by synthesis. Herein it is quite analogous to physical study.

But the preceding case of priority in time appears not to be the sole one contemplated by the Gestaltists. It referred to the study of a person's perceptions or other experiences by any onlooking psychologist. But the Gestalt doctrine seems at times to refer to the development of the person's percepts themselves, irrespective

of any onlooker. What does a child see clearly first; the visual universe, or single sensations? Again the answer seems to be—Something intermediate, a window, a lamp, or maybe a bright face, whence the child proceeds both downwards and upwards.

But the Gestaltist theorem seems not infrequently to have yet another reference; it does not deal so much with the person's perceptual objects as rather with his whole integral experiences, whether of perceiving, of thinking, of feeling, or of willing. Does the theorem hold good here? Again it seems to be invalid. The growth of the mind appears to be characterized by simultaneous differentiation and aggregation. In the notable words of Spencer: mental, as physical, development progresses from homogeneous incoherence to heterogeneous coherence.

There is yet another case which seems to have been mixed up with those preceding; it is that of exposition. Suppose we wish to learn or teach any science, do we work up from the elements to the whole, or down from the whole to the elements? Obviously, we do just as we please; the choice is not a matter of correctness, but of convenience. And if the psychologist thinks he can manage to start best from simple constituents, or from complex integration, why should he not try? The eventual result *should* always be the same.

In short, then, this Gestaltist doctrine of the temporal priority of the whole to its constituents would appear to have but little foundation.

§ 8. *Priority of Wholes in Function*

But even this is not all. From priority in time there is often an unnoticed shift over to priority in properties or functions. The most important of these, it is said, are those of the whole mind, and are not the mere sums

of the properties of its parts. But such statements pay curiously small regard to ordinary logic (such as those of Mill, Sigwart, and many others), which has long set forth the general nature of what has been named conjoint agency.

J. S. Mill writes:

> "It is seldom, if ever, between a consequent and a single antecedent that this invariable sequence subsists. It is usually between a consequent and the sum of several antecedents, the concurrence of all of them being requisite to produce, that is, to be certain of being followed by the consequent."

Just which antecedents happen to be appreciably effective remains in each case a problem for further solution. For instance, when a man decides to enlist in the army, his motive may include patriotism, or vanity, or despair, and so on. On the other hand, many of these or other things may *not* contribute to his decision. To say that he is moved by the situation "as a whole", if it has any meaning at all, is definitely false.

Similar considerations apply when we turn from causation to logic. This appears to happen when Wheeler gives as leading illustration of his laws that:

> "All of the lines of a square derive their position and direction from the figure-as-a-whole."

Now take any one of these four lines, and see on what conditions it really does depend. We find that such conditions are infinitely variable, but always limited to particular characters of the figure. Thus, suppose we possessed a square carpet and desired to know whether it would fit into a given rectangular room. One complete set of conditions would be that any two adjacent sides of the room should be equal, and that any side of the room should be equal to any side of the

carpet. These two observations are for the carpet layer vital. All else is *not* involved.

Altogether this doctrine of the priority of wholes, this " proclamation of the anti-synthetic standpoint of totality ", this " the actual theme " and " the nuclear conception " of Gestaltism—all this would appear to have really been built on a platform of confusion, inadequacy, and even definite error.

§ 9. *Gestalt, Objective and Subjective*

From all these and many other considerations, there seems no escape from the conclusion that there is something somewhere rotten in the state of Gestalt psychology. And this is all the more astonishing in view of the unquestionably eminent ability of its leading authors and proponents. Its numerous and grave deficiencies in broad outline are hard to reconcile with its admirable acuteness in detailed experimental execution, as also its captivating eloquence of exposition. Such authors cannot reasonably be suspected of committing one big blunder after another. More plausible would be the suggestion that there has been one single unfortunate slip with ill-fated widely ramifying consequences.

And something like this would appear to be the actual situation. *All the troubles would seem to centre on the concept of " wholeness ".* What is this term really intended to mean ?

The Gestaltists seem either to have not asked themselves this question, or at least to have answered it with surprising lightness of heart. Thus even Krueger, who may be considered the most acute and profound among them all, dismisses the matter as follows :

> " What wholeness is, we learn immediately and with an unquestionable certainty in our experience."

Now, the problem of wholeness we have seen to be essentially that of "unity" and of "division". Further, as appeared abundantly in the preceding chapter, and earlier in the figures of Schumann (Chapter XV), such things as unity and union, together with their cardinal features of "belonging-together" and "not-belonging-together", denote primarily nothing more than manners of presentation; they do not express anything of the matter presented; they display a grouping which is neither true nor false and so conveys no information to guide behaviour. Indeed, except for its superior sensorial vividness, the companionship is of the same general nature as is that of "ships and shoes and sealing-wax". With this subjective grouping may be contrasted the objective kind; this is only called "unity" by way of a figure of speech; on the other hand, it does admit of being true or false, and does, therefore, afford information; anyone noticing that one pea is like another one thereby knows something more about them. Linkage of this sort is quite familiar to the man in the street. It can readily be applied to mental tests, even in a highly abstract way. Thus a child will readily answer the question: "Which belongs to a nail; a ball or a hammer?" In such cases he will know that he has to look for some or other objective relation, such as nearness, likeness, cause, or purpose.

The two kinds of perception of wholeness are exemplified in the following figures. In the case of Fig. A we can, arbitrarily, group any row of rectangles as a whole, regarding the three as belonging together, and all others as not belonging to them. But with equal ease we can instead group together each column. Or again, we can make groups in various cross directions. None of these groupings can be called true; none false; they are just different ways of looking at one and the same set of facts. The choice between them could not possibly

be taken as a test of what is commonly called mental ability.

FIG. A.

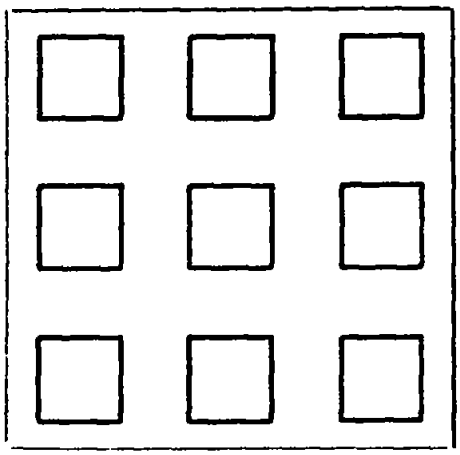
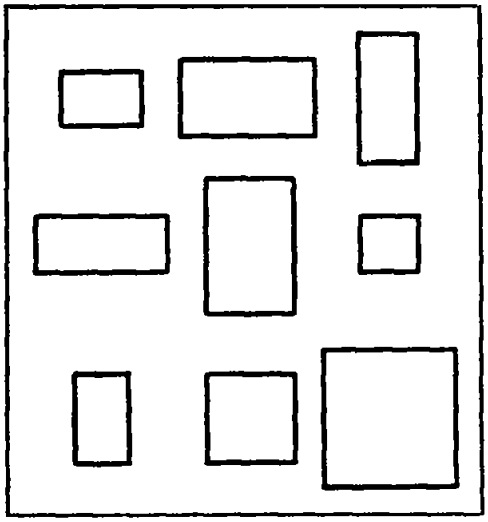


FIG. B.



Turn next to Fig. B. This time, the forms of the rectangles, instead of being all the same, are all different. And yet the groupings can be just the same as before. Evidently, then, they do not essentially depend on the nature of the items grouped. We do indeed perceive these objective items, yet we are not guided by them.

FIG C.

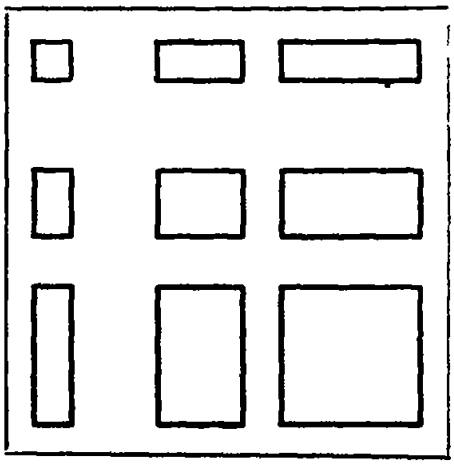
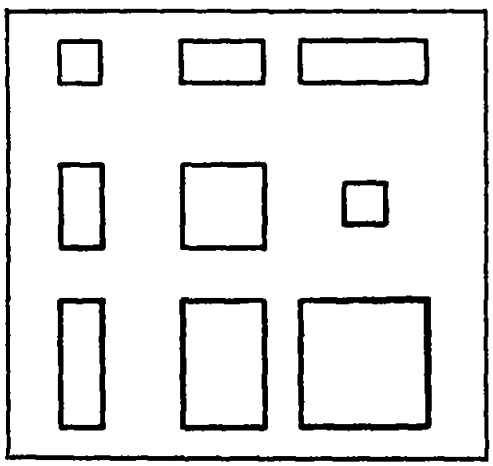


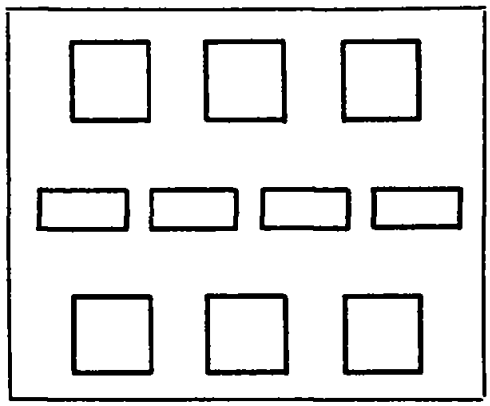
FIG. D.



But turn now to Fig. C. Here again we have the power to group and again, too, we perceive the

objective forms. But this time the two activities are differently accentuated. The tendency to group has with many persons nearly disappeared; with all, it has become arbitrary. But the objective relations, owing to their regularity, attract keen notice. Stated or implied acknowledgment of them is definitely true or false. To employ them in a test of ability can be done with the greatest ease and in a variety of manners. One of these is given in Fig. D. The testee is only asked to say which of the nine rectangles does not "belong". That this time his answer will be true or false is obvious enough. And clearly the reason is that his task consists in discovering some objective regularity pervading all the figures except one.

FIG. E.



Turn lastly to Fig. E. Here a tendency is noticeable to prefer a grouping in rows. The ground suggestive of this grouping, we may surmise, is supplied by the resemblances horizontally. But such a suggestive ground involves no compulsory choice. The spectator can still, if he desires it, group in any of the other manners. Not one of them will be either true or false. These characters only arrive on the scene when the testee is explicitly or implicitly instructed to discover some prescribed objective character; this will consist, in general, of relations or of correlates (see Chapter XXXIV).

Now, which of these two kinds of wholeness, of "belonging-together", and of "not-belonging-together", of openness and closedness, has been held in view by the Gestalt psychologists? Is it the subjective kind or the objective kind? We can hardly exonerate these authors

from the charge of having *confused the two.* But whereas their main conclusions have been explicitly or implicitly applied to the objective kind, nearly all their evidence has been taken from the subjective kind, as illustrated above; it does not depart in principle from the grouping demonstrated by Schumann.

Indeed, the leading case given by them is the following figure, where the spectator is apt to group together the dots which are nearer to each other. Thus, starting from the left, 1 and 2 are said to constitute one Gestalt or whole, 3 and 4 another, and so on.

This is, in fact, part of the very figure given originally by Schumann himself (although they make no reference to him).

Their figures particularly incline to the type exemplified in figure above. What we have been calling suggestive grounds are designated by them as " principles " or " factors ". In A the factor is said to be that of " nearness ". In B it is " resemblance "; each triplet has the appearance of a separate unity, because its three members are like one another:

Another instance is the following:

FIG. C

a b c d e f g h i j k l

Here a tendency is observed for c, d, and e to be grouped together. This is attributed to the factor of " common

fate" (*gemeinsames Schicksal*), in that all three dots are raised above the rest.

Yet another instance:



Here, all the curved portions are grouped as one line, and the straight portion as another one. The grouping is said to follow the factor of "continuous prolongation" (*Fortsetzung*).

Petermann, as we saw, criticized all these "factors" with great severity. But, at any rate, they themselves may be true or false and thus may direct behaviour. Yet the groupings suggested by them possess neither of these properties.

§ 10. *What Subjective Gestaltism has done*

The general situation, then, would appear to be that the Gestaltists have got their categories mixed. The observations and arguments derived by them from the perception of subjective Gestalten or wholes have been applied to that of objective ones; or sometimes vice versa. The next question is—What, if any harm has been done? May not the two categories, after all, be essentially analogous?

The answer would appear to be decidedly in the negative.

No difference would seem conceivably to exceed in width and depth that which the two perceptual activities have already manifested above. The objective activity decides all the truth and falsehood that may be in percepts to guide behaviour. The subjective kind

does but submit these percepts to more or less trivial and arbitrary by-play.

However, there are many more differences which, if they cannot rival that which has just been given, yet possess not a little interest and importance of their own. One is that only the subjective, not the objective, segregation is sharply cut. Thus, the groupings in Figs. A-D, although liable to change from moment to moment, yet so long as they last, are perfectly definite. In A, the group includes just two members, not the smallest fraction more or less than these. Even the two constituents of D, although in mutual contact, are quite sharply delimited from one another. How different is the picture when we turn to the objective facts as the shape and size. Such facts may indeed be more striking and important in some domains than in others. But generally speaking they ramify continuously throughout the universe.

If anywhere in psychology a case can be found for a sharply cut objective whole, surely it is that of stimulation and reaction. These two seem to constitute a cleanly segregated unit. But closer consideration indicates otherwise. Suppose, for instance, a hungry lion sees an antelope. What is its "reaction"? Is it simply to scrutinize the prey? Or does it take in furthermore the killing, the eating, and digestive slumber or what not? True enough, the psychologist talking of the event can well enough, for his own convenience of thought, make two sharp cuts in time; one where the event shall be taken to begin, and one where it is to end. But no such cuts exist objectively. Instead, all consciousness stretches forward in a chain that has no beginning save birth, and no ending save death. A vivid example of this contrast between the subjective sharp divisions and the objective unsharp ones is afforded by contour lines. These the Gestaltists con-

tinually hold up as the main principle of segregation, whereas the realist and impressionist painter, Édouard Manet, goes so far as to say that " In nature lines do not exist ".

Still further vital differences between the two grouping activities are in respect of function. The subjective grouping is chiefly governed by the exigencies of understanding and learning. Let us consider the sole example given by Koffka in his general account of the whole theory. He writes :

> " Just recall the change that takes place in your idea of a new city or a part of the country during the first weeks of your stay there. The originally *more or less chaotic* field gets more and more organized, certain main directions develop, a few chief points determining the rest are singled out, and accordingly your behaviour in the new surrounding changes."

To fix our ideas, suppose that our adventurer comes to London and organizes this as a system of streets leading to and from the great shopping centres. Another man may arrive and, instead, organizes his scheme of the streets as a means of getting to the British Museum. For yet another man, the chief points of reference might be supplied by the parks. Yet another might conceive the city from the standpoint of history ; yet another from that of a taxi-driver. The variety is without end. Meanwhile the actual facts about the city, those which can or may be ascertained about it, remain comparatively constant. Or take the case of a teacher of mathematics and suppose him to be thoroughly acquainted with his field. He still has the task of presenting it in such an organization as he can make his pupils understand. Two teachers may do this very differently, and yet both succeed. What has been said here about mathematics applies equally to all expositions of every topic, whether uttered in the schoolroom, printed in

treatises, or bandied about in conversation. Indeed, it applies not only to the imparting of information to others, but no less so to the development and clarification of one's own thoughts. Everywhere, the subjective organization is a mere convenient device, suggested indeed by the objective organization, but having very loose correspondence with it. Finally, it must be noted that all this distinction between objectivity and subjectivity in the case of " wholes " can, without much forcing, be applied also to such concepts as " configuration ", " pattern ", " structure ", and even " form " itself. Returning to our rectangles in Figs. A-E, the grouping by rows could be called one configuration, and that by columns another. But the gulf of all these from the objective characters remains as impassible as ever.

§ 11. *Upshot*

From all this account of Gestalt psychology what are the main emergent results? It would appear that this doctrine has not been constant but continually changing. Nearly all the main later developments, however, had their seeds already present at the start with Ehrenfels.

The chief feature was in the beginning—and still is, more or less vaguely, in popular estimation—an insistence on the role played in mental life by Gestalt in its original sense of " form ", " configuration ", and so forth, as opposed to the sensation formed or configured (the word is equivalent to *gestellt*, put or placed). This insistence was in no way original, but it did constitute an opportune rebound from the widespread doctrine of associationism, wherein form had been much neglected.

But already in the first publication of Ehrenfels,

this way of conceiving Gestalt was fundamentally qualified. It was said by him to be something given in *Anschauung*, or passive contemplation; something picture-like. It was contrasted with such processes as comparison, which were characterized as thought-like, and said to be achieved by "a peculiar activity", "a shift of the spiritual glance". In this way, "Gestalt" took a meaning very different from form, but still quite in accordance with ordinary modern usage of the word; it meant *appearance*.

But in thus separating the "passive" perception of Gestalt from the "active" kind of perception, he was really divorcing it from its most intimate and indispensable supplement. Still wider is the gap thus introduced which separates the Gestalt perception from the domains of thought, of feeling, and of volition. And in so far as Gestaltism is run on these lines, it is no general psychology, but only a fragment of one.

Within its thus very restricted domain, however, it has carried out abundant research. And this, at any rate, has been universally credited to it as a great achievement. And, indeed beyond all doubt, this research has been devised and executed with the utmost assiduity and ingenuity. But even so, the results if misinterpretated spread not light but darkness.

And there seems reason to fear that this is actually the case. Covering all their work, overlaying it with equivocation, inadequacy, and error, there has been one fundamental confusion. Their "wholeness", "Gestalt", "configuration", and so forth, have really been of two fundamentally different kinds. One is objective, in the sense of dealing with matter that can be true or false, and so can serve to guide behaviour. Whereas the other, and subjective configuration, is nothing more than a way of grouping. It is not concerned with the matter regarded, but only with the manner of regarding.

In general, these authors have derived their results from the subjective kind, and then erroneously applied them to the objective kind. In this fashion they have been led far from genuine science. In place of this they have only been able to substitute some dynamic theorems which, besides being hypothetical in extreme degree, are so vague that—like the prophecies of an astrologer—anything can be read into them, nothing read out of them. Altogether, if Associationism may be regarded as Psychological Enemy No. 1, cannot Gestaltism put in a claim to be at any rate No. 2 ? !

CHAPTER XXV

GENERAL MENTAL CONSTITUTION

§ 1. Mystery of the Individual. § 2. Mystery of Feeling. § 3. Mystery of Knowing. § 4. Mystery of Doing. § 5. Units of Behaviour. § 6. Complexes of Behaviour. § 7. Unconscious Mind. § 8. Upshot.

§ 1. *Mystery of the Individual*

Let us look back at what we have so far done. Having already in Part B discussed the perennial but crude endeavours to portray the psyche in terms of "faculties" or of "sensations", we turned in Part C to the finer analyses and syntheses that have been accomplished in the course of the ages. And such a quest appeared to fall naturally into two main divisions, which respectively concerned mental constitution and mental laws; a distinction akin to that between structure and function. The two would appear to be mutual supplements. *Some* structure must precede and initiate function. But then the functioning in its turn must modify the structure; and so forth, indefinitely. In Part C we have been considering only the structure. Let us pick out and recapitulate what have appeared to be its principal features.

As the central fact, we readily found the universe to consist of indefinitely numerous Individuals undergoing Experiences in a physical Environment. But so soon as we inquired into the nature of these Individuals we came upon very great difficulties and irreconcilable doctrines. To the question there appear to have been, and still to

be, four main competing answers.

According to one—favoured both by the plain man and by not a few psychologists—the Individual is neither more nor less than the physical body.

A second answer—also widely accepted by the man in the street, though scarcely by psychologists—would have the Individual consist, not in the good solid body, but in a gasiform copy of it, a sort of spectre, or wraith, maybe with the addition of wings. So conceived, it has often been invested with the title of " soul ".

In the third answer, the Individual is a simple, and possibly for this very reason perdurable, or even eternal, " I ". This, too, is accepted by the omnivorous common sense, to judge at any rate by the implications of his language and thought. Certainly it is fundamental for a large number of professed psychologists.

The fourth answer is only a negation. Nothing in any sense of the word substantive is believed to exist, or at any rate to have been proved. The mental states are supposed to float about freely, without being the states of anything. Conscious life is but a bundle of sensations. This to common sense seems absurd—likewise, to most psychologists.

§ 2. *Mystery of Feeling*

Passing on from the Individual experiencing to his experiences, we find numerous philosophers and psychologists influenced by a conviction that the existence of anything " consists in its passing through a diversity of states ". This is at any rate what we see happening all round us physically. The same water may vary from the liquid state to the solid, or to the gaseous ; the same fruit may be ripe or unripe, the same animal, dead or alive. And many psychologists have assumed that as much can be said of the mind ; the existence of this,

too, they have believed must needs consist in its passing through different states.

But on the other hand, those psychologists who have relied not so much on *a priori* reasoning as rather on actual observation, have found bare mental states to be remarkably elusive; in fact, quite difficult to detect at all.

Still mental states do seem to have been discovered in that effect of stimulation which has been called "primitive" or "pathic" sensation or "pre-sensation". Moreover, besides these evasive states of a sensory nature and specially connected with the excitation of the sensory organs, there are others which are patent enough and appear to have a more central original. Of these the principle, and perhaps the sole, examples are the states of pleasure and unpleasure.

§ 3. *Mystery of Knowing*

That effect of sensory stimuli which immediately follows the pathic "pre-sensation" but unlike this, usually presents itself in an extremely conspicuous manner, is in general no longer anything that can properly be called a sensory state; instead, it is sensory knowledge. Such a transformation holds most for the visual and auditory senses; least for the visceral kind.

It can attain to almost any degree of complexity; but even in its simplest phases it involves a certain remarkable duplication. Whereas a mere state can be adequately expressed by an intransitive sentence such as "I feel", the perception involves a transitive one as "I see this". It comes into existence—here as throughout cognition—by adding to the subject an *object*.

Besides all this cognition arising from sensory stimuli, there ensues a second phase where no such stimuli are involved. This is called thought (it includes memory).

In both perceiving and thinking, we have had to make a distinction, neglect of which has repeatedly been disastrous; it is between the matter presented and the manner of presentation.

As regards the matter, the constitution of this is comparatively straightforward. The objects of all our cognition are entities having their own characters and also interrelations.

As regards the manner, on the other hand, this has been and still is responsible for terrific controversies. For instance, the age-long war between "presentationism" and "representationism". But of these the plain man little recks. He is in no way troubled by the fact that he can perceive and think of things outside himself. He would be much more upset if he thought he could not.

§ 4. *Mystery of Doing*

Now we pass to an entirely different feature—or shall we say, organ?—in the constitution of the psyche. After the feeling and the knowing comes the doing, that is to say, volition (see above, p. 303).

Genetically, all three have interesting relations to one another. The feelings seem able to produce bodily movement on their own account, as exemplified in reflexes, emotional resonance, and so forth. But the knowing —with the doubtful exception of certain high-order reflexes — can only operate by way of volition. And certainly, the volition is inconceivable without more or less knowing.

Now, about the volition, the common-sense view is that the knowing excites impulses, but these are controlled by the will.

Scientific psychology, on the other hand, has devoted most of its time to disproving the view. The rest it has chiefly spent in proving it again.

§ 5. *Units of Behaviour*

Having set forth the achievements of psychology about the most general modes of existence of the Individual—his feeling, knowing, and doing—our Part C went on to examine how these modes are deemed to be functionally interrelated.

Commonly, they have been put together into biological units, each containing an " excitation " and a " response ". The excitation has been divided into three phases : initial situation, ensuing orexis, and then bodily resonance. As regards the responses, the chief attainment of psychology seems to be their division into two types : " immediate " and " delayed ".

But all such clean-cut integrations and divisions, it must be remembered, are largely for the purpose of economy of thought. They are subjective, artificial, and in fact more or less inaccurate. The underlying objective facts are interwoven much more intimately and irregularly.

§ 6. *Complexes of Behaviour*

Analogous integrations and divisions have been extended into complexes of higher order. But here again the distinction has to be made between the subjective and the objective configurations ; on the one hand, the grossly regular systems contrived for economy of mental operation ; on the other hand, the far subtler interlinkages of actual facts.

A notable instance of the objective kind has been encountered by us in the fact that any person usually does not desire a thing so much for its own sake, as rather for something else to which it is expected to lead. In this way motives and actions fall into long chains of means and ends.

Again, we have met a general integration of the psyche by what has been called emotional logic. Thus, he who loves anything tends to hate or fear whatever injures it.

Once more, we have found the consistency of a person's behaviour is greatly enhanced in so far as his conduct is guided by abstract principles. For each of these brings together an infinite number of particular situations under a single general rule.

And besides all these mental enchainments which derive from the essential nature of the psyche, there are all those which arise from accidental association. In this way, experience tends to cluster together into episodes.

That all this and other complex integration of behaviour is of extreme importance, can hardly be doubted. But how much information about it has been acquired by scientific psychology, not being already at the disposal of common sense? In truth, the great majority of psychological text-books—and the more so in proportion as they have claimed to be scientific—would seem to have taught us on this great sphere strangely little. Some psychologists have indeed tried to get there, but lost their way.

§ 7. *Unconscious Mind*

Now, however, we do come upon a very daring and largely successful attempt to go right away from anything that the plain man ever dreamt of. Aided by ambiguity of terms, it has issued in the strange paradox, that the greater part of consciousness is unconscious. More reasonably expressed, this doctrine teaches that besides his mental experience open to introspection, the Individual undergoes a far larger amount of experience which is analogous but *not* introspectible. At the present day, this doctrine rests mainly upon the evidence of

mental pathology. But many, perhaps most, psychologists would extend it to all normal experience also.

If this doctrine and its fruits are thus here disposed of in no more than a few words, this is mainly due to the embarrassment of riches. Had psychology never produced anything else, surely this unconscious mind would have been enough to save its credit.

§ 8. *Upshot*

Many readers may be surprised—and even shocked—to note that our historical account has been on the whole far less optimistic than most. Usually the picture held up to us has been one of continual progress, comparable to that made in other sciences. But comforting as may be such a belief, it is not easily reconciled with the fact that, whereas the expositions of other sciences soon become more or less obsolete, even the earliest psychological literature often still appears to be quite up to date.

The belief in continual progress seems to rest largely on an illusion. The course of mental science has to a great extent been one of discovering, forgetting, and rediscovering. The amiable historians overlook the forgetfulness, and so arrive at unbroken discovery. They are as one who should suppose that, because each wave is moving forward, the tide must be doing so.

However, we must always bear in mind that this present section has only considered the progress of science with respect to the fundamental principles. It has not brought into account the continually accumulated and diversified observations of detail; including those derived from the study of children, society, animals, pathology, criminality, and education.

Furthermore and above all, our story has only been that of constitution and structure—the feeling-knowing-

doing character of the normal adult psyche. *The examination of its laws and functions has still to come.*

The ideal role which such laws should play is double. They ought to aim at indicating, not only how the constitution functions, but also how, starting from some original primitive status, it has ever reached its ultimate development. By their means, some at any rate of the hoary old problems may be hoped to find at last their solution. Finally, they and they alone can promote psychology from the stage of mere description to that of scientific prediction. To them accordingly we will now turn.



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